

NATCO

THE *COMPLETE* LINE of
STRUCTURAL CLAY TILE



Represented by

**NATIONAL · FIREPROOFING
· CORPORATION ·**

General Offices: Fulton Building, Pittsburgh, Penna.

NATCO PRODUCTS INDEX

INTERIOR WALLS

Natco VitritilePages 4 to 27 inc.

A particularly attractive load bearing, structural tile for interior walls and partitions—also furnished kerfed or split for furring. Available in salt glaze, or the new fritted glaze, in a wide range of charming colors. (See color charts.) Beautifully glazed, sanitary, easily cleaned—eliminates the necessity of plastering or painting.

Natco Partition Tile.....Page 43

Light, strong, easily and economically laid. Fireproof, indestructible, resists the passage of cold, heat and sound.

Natco Furring Tile.....Page 42

Applied to the interior of exterior walls—prevents dampness from penetrating and discoloring plaster.

EXTERIOR WALLS

Natco Vitritile.....Pages 4 to 27 inc.

A particularly attractive glazed load bearing, structural face tile—sanitary—easily cleaned.

Natco Vitribrick.....Not illustrated

A beautifully salt-glazed structural unit, $3\frac{3}{4} \times 8 \times 5$ ". Permanent in character, form and finish. Dead air cells provide insulation. Effects outstanding economies in labor, mortar and laying-time.

Natco Double Shell Load Bearing Tile

.....Pages 28 to 31 inc.

Furnished with 12x12" scored face for various thicknesses of walls. Double shell construction—resists cold and dampness—provides effective base for stucco and plaster.

Natco Triple X Load Bearing Tile....Page 32

Has 12x12" scored face for different wall thicknesses. For structures where stucco exterior is desired. Economical, quickly and easily laid, permanent.

Natco Header Backer Tile.....Page 33

Combined with brick in load bearing and curtain walls. Mechanically bonded, light in weight, substantial and permanent. Meets every brick and mortar joint condition.

Natco Unibacker Tile.....Page 34

Provides effective bond between tile and brick facing. But one unit required for entire wall. Insures rapid, economical construction.

Natco Heath Cubes.....Page 31

$7\frac{3}{4} \times 7\frac{3}{4} \times 7\frac{3}{4}$ " load bearing units. For use with or without brick facing.

Natco Interlocker Tile.....Page 42

Forms a mechanically bonded wall with or without brick facing.

Natco Storage Bins.....Not illustrated

For the storage of coal, grain, ashes, sand, silage and various other materials, Natco Circular Glazed Hollow Tile Storage Bins, reinforced with steel bands, are recommended for permanence, economy and fire safety. These

bins vary in size from 8 ft. in diameter to 30 ft. and can be built 50 ft. in height. Descriptive literature on application.

Natco Face Tile (Tex-Tile)..Pages 35 to 41 inc.

Furnished glazed or unglazed, 5x12" face for 8" walls and $10\frac{3}{8} \times 12$ " face for ashlar random bond. Attractive texture face in several beautiful color ranges. Double shell construction. For residences, office and commercial buildings, etc.

Natco Face Tile (Combed Face)

.....Pages 35 to 41 inc.

5x12" combed exterior face—interior smooth, sanitary, easily cleaned, for 8" walls. (Also furnished unglazed when desired.) Double shell construction. For industrial and factory buildings, etc.

Natco Face Tile (Smooth "Tex" Finish)

.....Page 53

Natco Face and Common Brick.....Page 53

FIREPROOFING

Natco Girder and Column Covering

.....Pages 50 to 52 inc.

Well burned Natco Hollow Tile has no equal as a covering for structural steel or iron—is best non-conductor of heat—is not destroyed by fire or water—all necessary shapes and sizes furnished.

FLOORS

(Also adapted to flat roofs)

NatcoflorPages 44 and 45

Combination of special shaped Natco Tile with 2" wide reinforced cement grout joints. Saves dead load, floor depth, labor costs and insurance—all tile ceiling.

Natco Flat Arch Floors.....Pages 46 to 48 inc.

Afford great strength and fire safety with minimum weight. Can be laid winter and summer because they require no concrete fill or costly forms. All tile ceiling.

Natco Combination Floors—(Standard One

and Two Way Systems).....Page 49

Adapted for all classes of buildings where long span fireproof floors are required. Minimizes dead load and provides a good plastering surface.

Natco Segmental Arch.....Page 45

Particularly adaptable for warehouses, lofts, factories, sidewalks or where great strength is required and a flat ceiling is not necessary.

ROOFS

(See also Floors above)

Natco Book Tile.....Page 48

A permanent, non-spalling roof of high insulating value due to the enclosed air spaces. Particularly adapted for mill buildings and similar structures—also for buildings where a light, pitched roof is required.

NATIONAL FIREPROOFING CORPORATION

Manufacturers of Natco Structural Clay Tile

Fulton Building
PITTSBURGH, PA.

BRANCH OFFICES

NEW YORK, N. Y.
Chanin Building

CHICAGO, ILL.
Builders Building

PHILADELPHIA, PA.
Architects Building

BOSTON, MASS.
Textile Building

IN CANADA: NATIONAL FIRE PROOFING CO. OF CANADA, LTD., TORONTO, ONT.

The Corporation

Established in 1889, the NATIONAL FIREPROOFING CORPORATION has been in business continuously since that time. It is the only concern in the world manufacturing a complete line of structural clay products.

Beside the branch sales and service offices listed above, the company also operates as contractors for fireproof construction in hollow building tile in the Chicago district.

Facilities

The total production of the NATIONAL FIREPROOFING CORPORATION approximates a million tons of structural clay products annually. This production comprises structural clay tile to meet every building need.

The Corporation operates twenty-two plants in seventeen different localities, in close proximity to the principal tile markets of the country. In addition, it operates a plant in Hamilton, Ontario. It owns or leases over 5000 acres of clay deposits. It is estimated that the deposits thus controlled contain not less than 56,000,000 recoverable tons of clay, which, at the normal rate of operation, is sufficient to last more than fifty years.

Reliability

The rating of the Corporation in Dun and Bradstreet, together with its long record of fair dealing with its customers is the best possible guarantee of its dependability and stability.

Branding

All structural clay tile manufactured by the NATIONAL FIREPROOFING CORPORATION is branded with the trade mark name



"NATCO." Special types bear, in addition, marks of identification, such as Natco XXX, Natco Header Backer, Natco Unibacker, etc. All tile intended for load bearing walls are so branded.

The Product

Natco Structural Clay Tile is made from special clay, found only in certain favored localities. This clay is mined and moulded into scientifically designed shapes that provide maximum strength and durability with a minimum of weight. These shapes are dried, then placed in large kilns where they are exposed to a temperature of over 2000 degrees varied to suit the structural or non-structural use of the ware.

The Complete Natco Line

Natco, The Complete Line of Structural Clay Tile, comprises units to meet every building need in structures of every kind.

You have a single source of supply, backed by one united, uncompromising responsibility. Along with the tremendous production facilities of the Corporation you have the stability, the experience and the practical knowledge of the needs of the field that has come with over forty years in business.

Engineering Service

The Corporation maintains an adequate and efficient Engineering Department. This department is anxious to co-operate and show you how you can most economically and satisfactorily use Natco Structural Clay Tile to the best advantage in every type of construction.

ADVANTAGES OF NATCO STRUCTURAL CLAY TILE

Permanence

Made of selected clay, cured and burned under the careful supervision of graduate ceramic engineers, Natco tile is permanent in form and structure. It is unaffected by heat, cold, dampness and chemicals—never warps or disintegrates.

Strength

Natco Tile is scientifically designed for the purpose to which it is to be applied. The aim is to obtain maximum strength, with minimum weight.

Minimum Weight

Natco Structural Clay Tile, while equal or superior to other materials in strength, insulating qualities, and fire safety, affords through its lightness considerable savings in dead load as well as in steel and foundation costs.

Insulating Qualities

With Natco Structural Clay Tile, the enclosed dead air spaces provide positive insulation against rapid changes in temperature. In wall construction where any of the types of double shell tile are used, the double shell construction itself, with its wide non-continuous mortar joints, together with the moisture stops at each end acts as an additional barrier against the passage of heat, heat and moisture.

Due primarily to its insulating qualities, Natco Structural Clay Tile has no equal as a covering for steel. In floor construction, its insulating qualities give it a distinct advantage over other types of floors.

Fire Safety

Made of raw material—clay—which is absolutely non-flammable, and then exposed during manufacture to over 2000 degrees of heat, Natco Tile is obviously fire-resistive. Its rate

of heat transfer is very low, so that it is the ideal material to shield steel work in skeleton buildings.

Soundproofness

Due to the dead air spaces which resist the passage of sound, walls and floors of Natco Structural Clay Tile are more nearly soundproof than any solid structural materials.

Installations

So many outstanding buildings all over the country have been constructed of Natco Structural Clay Tile, that it is out of the question to give even a partial list. In thousands of public buildings, skyscrapers, hospitals, schools, institutions of all kinds, residences, industrial and commercial buildings, and other types of buildings, Natco Structural Clay Tile has been used and is giving perfect satisfaction.

Distribution

Natco plants are strategically located near the principal tile markets of the country. Wherever possible, orders are placed with those plants most advantageously located in order to make savings in transportation charges.

Shipping

Natco Tile are loaded by experts, under close supervision, assuring that the cars will come through with a minimum of breakage. On material such as Vitritile, cardboard wrappers are used, to assure arrival in first class condition.

Single Source of Supply

Instead of buying wall tile one place, floor tile another, you can—by using Natco—fill all tile needs from a single source of supply. Shipments may be better arranged to suit your needs, car load lots may be made up instead of expensive partial shipments and all responsibility will rest with one company.

WALLS OF PERMANENT BEAUTY WITH NATCO VITRITILE

Fritted Glazed—Salt Glazed

General

Natco Vitritile is an extremely attractive finished face structural fire clay tile for use in both interior and exterior load-bearing and non-load-bearing walls and partitions.

Strength and Insulation

Numerous official tests prove its high crushing strength and adaptability for load-bearing walls, as well as for wall facing. Double shell construction, with its enclosed air space, most effectively resists the passage of heat, cold and dampness through the walls.

Accuracy as to Shape and Size

All the tile are selected as to shape and run exceptionally true to size. Each piece is hand leathered or smoothed at the edges, resulting in neat horizontal and vertical mortar joints; $\frac{1}{4}$ " to $\frac{3}{8}$ " mortar joints are generally recommended.

Colors and Finishes

The many different finishes and colors in which Natco Vitritile is furnished, greatly increases its field of use. In addition to the beautiful salt glazed finish, it is available in a fritted glaze finish in very attractive mottle effects.

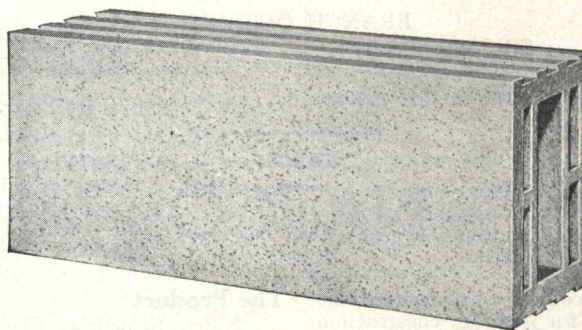
Fritted Glaze and Salt Glazed Vitritile—These finishes are entirely unaffected by dirt, grease, chemicals and heat—thus are easily cleaned and kept clean.

Sizes of Natco Vitritile

Vitritile in all finishes is manufactured in four different thicknesses, three for wall tile and one for furring as follows: $3\frac{3}{4}$ " Vitritile, furnished one or two sides, finished. 6" Vitritile, furnished one or two sides, finished. 8" Vitritile, furnished one side, finished.

Above sizes are also furnished one side scored for plaster. $1\frac{7}{8}$ " Vitritile, for furring brick, stone, concrete, etc.

All sizes of Vitritile are furnished select one face, but the $3\frac{3}{4}$ " and 6" tile is also furnished select two faces for two-faced partitions of these thicknesses.



Proper shapes are provided for corners, closures, sills, lintels, base and cap to give a pleasing finish to a building.

While we have standard shapes to take care of practically every building condition, we are also equipped for special cutting, such as for stair slopes, corners greater than right angles, or the necessary tile to make 2" or 3" courses when working up to ceiling lines, etc. Special attention is given to work requiring shapes to take care of such special conditions.

Engineering Service

Our Engineering Department will be glad to recommend the most economical and practical methods of using this material to secure the most attractive results.

Rapid and Economical Construction

In that the $3\frac{3}{4}$ "x5"x12" unit is equivalent to approximately three brick, the 6"x5"x12" to four and one-half brick, and the 8"x5"x12" to six brick, and are at the same time, quickly and easily handled and laid, considerable time, labor and mortar savings are effected. With each tile laid, a portion of the finished wall is put in place. There is no depreciation—the tile does not disintegrate or weather—there is no painting or other maintenance expense. Plastering is eliminated.

Adaptability

The field for use is practically unlimited. Vitritile is ideal for walls and wainscots in laboratories, schools, airports, restaurants, hotel kitchens and supply rooms, hospitals, gymnasiums, natatoriums, corridors, substations, subways and subway stations, public comfort stations, lavatories, shower rooms, garages, abattoirs, basements, filling stations, etc.

Packing and Shipping

Each tile of the Select or standard grade is placed in a corrugated paper container and carefully loaded and braced in cars, thus insuring safe arrival at destination. The Second quality is packed in straw and lath.

CLASSIFICATIONS AND COLOR

Select Quality

Includes tile free from chips or other imperfections that would affect the appearance of the finished wall. This quality is available in three different shade ranges in the Salt Glaze and in a variety of mottle effects, in Fritted Glaze.

Colors

Fritted Glaze—The beautiful mottled effects available are illustrated on succeeding pages. A complete description of the fritted glaze process and its advantages appears on the following page. On special orders fritted glaze is also finished in luminous matt whites, and midnight matt blacks (not illustrated).

Salt Glazed—Full mingled shade range No. 200 includes all colors from the lighter to the darker, and makes a most pleasing effect. The No. 50, or light shade range, has a slight blending of the lighter colors. In that more pleasing effects are obtained through the use of Natco Salt Glazed Vitritile in blended shades, it is not furnished in uniform colors.

For cove base there is a special chocolate brown dark shade available, known as shade range No. 90. This is desirable where a contrast in color is wanted between the cove base and

upper walls. Wainscot cap, sills, etc., can also be furnished in the No. 90 shade when desired. Sufficient time must be allowed to manufacture such items after receipt of order. All shade No. 90 cove base items carried in stock for prompt shipment.

Standard or Commercial Quality—Salt Glazed Only

Includes all tile which, due to slight facial imperfections, cannot be classed as select. No chipped tile, or tile not structurally sound, are included. The full range of color only is furnished in this classification. This grade is suitable for industrial and commercial buildings and similar structures.

Second Quality—Salt Glazed Only

Includes tile with small chips or other facial imperfections, which do not impair the strength of the walls where used. On account of its low price, this grade of Vitritile is especially suitable for use in place of rough finished concrete, brick or tile in foundations, load-bearing walls, etc., where, while the appearance may not be so important, at the same time a sanitary and light colored, permanent surface can be obtained at approximately the same cost. It is not sorted for color.

NATCO *FRITTED GLAZE* VITRITILE

NOW OFFERS A NEW MEDIUM
OF EXPRESSION TO ARCHITECTS



8510-L

FRITTED GLAZE - A PLEDGE OF PERMANENCE

NEW fields of color composition, color harmony, are open with the advent of Natco Fritted Glaze Vitritile. The comprehensive line of structural units, suitable for interior or exterior walls and partitions, are painted with flame into beautiful luminous matt whites, striking blacks, (not illustrated) and seven delightful and unique mottled effects, ranging through cream tans and cream browns.

Beautiful When Installed—the Beauty of this New Material Endures

The Natco Fritted Glaze process, scientifically developed, is a pledge of permanence. The glaze is as permanent as that on the finest English Glazed Brick—the standard of excellence in materials of this type.

8530-L


NATCO FRITTED GLAZE
VITRITILE

 OPENS NEW FIELDS OF COLOR
COMPOSITION AND HARMONY

8530-S



8515-L

NATCO FRITTED GLAZE represents the successful culmination of a determined attempt to produce a glaze so permanent—so impervious—so immune to the destructive agencies of time, the elements, chemical attack, staining, checking, and crazing—that it will easily meet the most exacting requirements. The fritted glaze process is the most effective method science has devised of holding crawling, peeling, blistering, cracking and pinholing to a microscopic minimum.

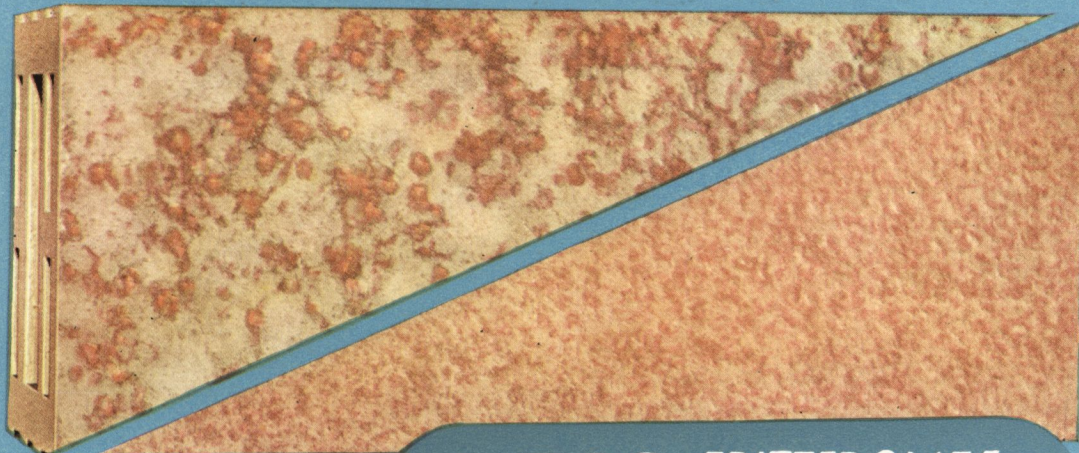
Tests and experiments early disclosed that the ordinary processes of raw mixing, spraying, and

kiln-burning which are in common use were powerless to attain these ideals. Only by the scientific fritted glaze process could they be realized.

Natco's frit is made of a number of various compounds, which are mixed, melted at 2300°, chilled and then ground to an impalpable powder. This powder represents a **new** and homogeneous compound, which melts at a much lower temperature. The successive coats of glaze material (sometimes as many as 7) are applied to the tile on a patented "G Mottling" machine, developed by a ceramic expert. This machine does its work with

ALSO FURNISHED IN MATT WHITE AND MATT BLACK—NOT ILLUSTRATED

8520-L



8520-S

NATCO FRITTED GLAZE
VITRITILE
IS FURNISHED IN A COMPLETE
VARIETY OF SHAPES AND SIZES



8535-L

absolute precision, substituting for the uncertainties of makeshift methods unvarying excellence of results. When the tile is kiln-burned, the frit causes the glaze to mature at a lower temperature; form a more intimate bond with the tile; give—because the various elements have been pre-melted, instead of merely fused, together—more uniform results; and yield a silica glaze equivalent to that on the finest English glazed brick—the accepted standard of excellence.

Colors are prepared in the same painstaking, scientific way. Instead of merely mixing a dye-

powder with the glaze, Natco utilizes **calcined** colors; the various compounds required to produce the desired shade are blended, burned, wet-ground and the resulting powder screened, before it is added to the glaze. Color variation is thus reduced to a minimum.

The added care needed, the added expense, of the scientific Natco Fritted Glaze process is abundantly justified in the increased service, the assured satisfaction, the well-founded confidence that Natco's product offers to the user. Fritted glaze is a triumph of the ceramic art, a pledge of permanence to you.

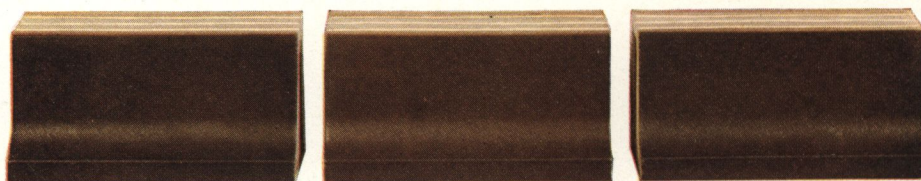
ALSO FURNISHED IN MATT WHITE AND MATT BLACK—NOT ILLUSTRATED

NATCO SALT GLAZED VITRITILE



SHADE RANGE No. 50 (SALT GLAZED) VITRITILE

Consists of a mingling of the lightest shades



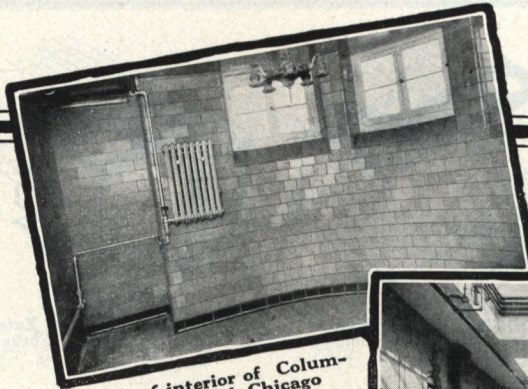
SHADE RANGE No. 90 (SALT GLAZED) VITRITILE

Designed particularly for cove base – can also be furnished for wainscot cap, trim, etc., when there is time available for manufacture. Cove base shapes are carried in stock at all times.



SHADE RANGE No. 200 (SALT GLAZED) VITRITILE

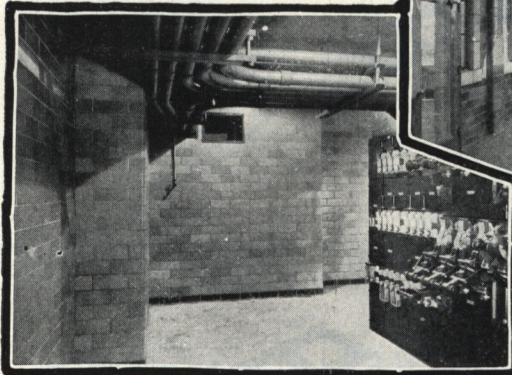
Full shade range—includes all shades from light to dark



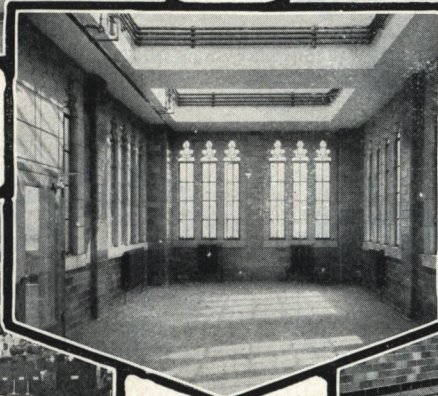
View of interior of Colum-
bus Hospital, Chicago



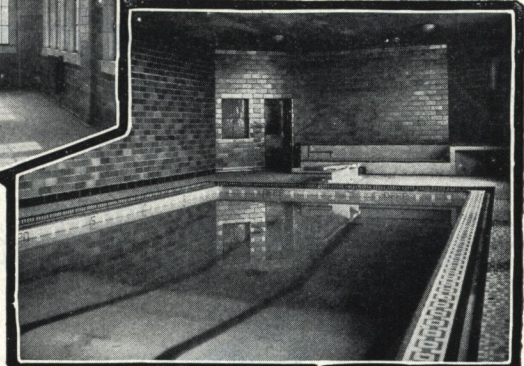
Cafeteria at Camden County
Vocational School, Mer-
chantville, N. J.
LACKEY & HETTEL, Architects



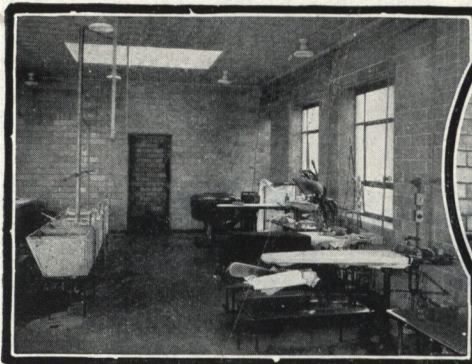
Power Control Room in Koppers Building,
Pittsburgh, Pa.
GRAHAM, ANDERSON, PROBST & WHITE,
Architects



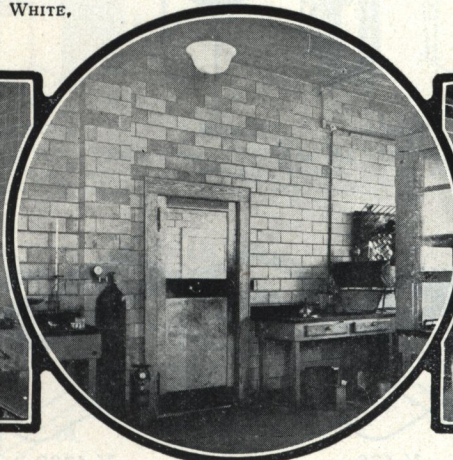
Solarium of the
Hahnemann Hos-
pital, Phil-
adelphia, Pa.
PETTIT AND FERRIS
Architects



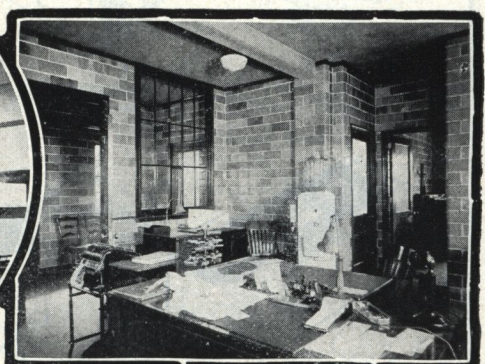
Swimming Pool, Colored Y. M. C. A.,
Montclair, N. J.
MAY & HILLARD, Architects



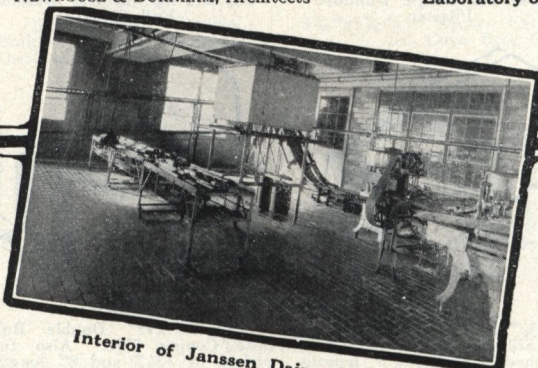
Interior in plant of Becker Dry Clean-
ing Co., Chicago
NEWHOUSE & BURNHAM, Architects



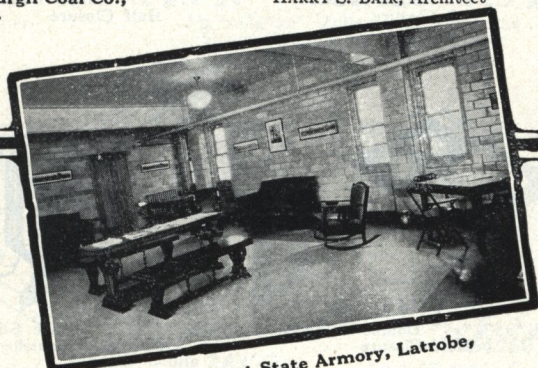
Laboratory of the Pittsburgh Coal Co.,
Library, Pa.



Office interior of Pittsburgh Tube Co.,
Monaca, Pa.
HARRY S. BAIR, Architect



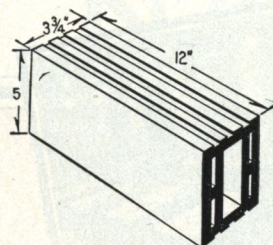
Interior of Janssen Dairy, Hoboken,
N. J.
MAX BEYER, Architect



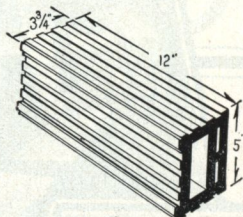
Club Room at State Armory, Latrobe,
Pa.
JOSEPH F. KUNTZ, Architect

A FEW TYPICAL NATCO VITRITILE INSTALLATIONS

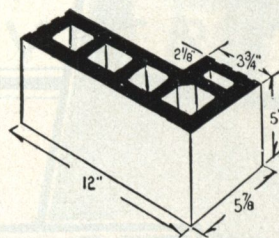
NATCO PAGE 9

**V-400**

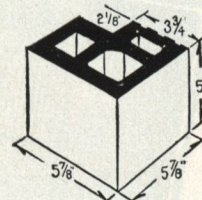
3 3/4"x5"x12" Wall Stretcher (smooth two sides), also furnished in 2", 3", 4", 5 7/8", 8" and 10" lengths

**V-890**

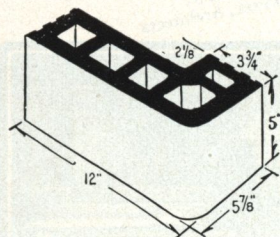
3 3/4"x5"x12" Wall Stretcher (smooth one side, scored one side), also furnished in 2", 3", 4", 5 7/8", 8", and 10" lengths

**V-4100**

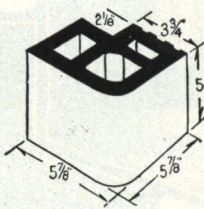
3 3/4"x12"x5" Square External and Internal Corner

**V-4105**

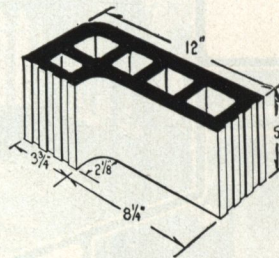
3 3/4"x5 7/8"x5" Square External and Internal Half Corner

**V-4110**

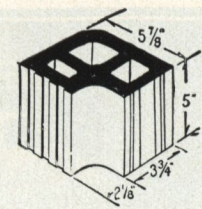
3 3/4"x12"x5" Bullnose External and Square Internal Corner

**V-4115**

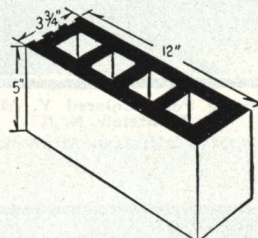
3 3/4"x5 7/8"x5" Bullnose External and Square Internal Half Corner

**V-4120**

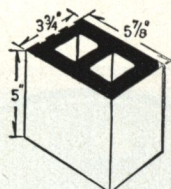
3 3/4"x12"x5" Bullnose External and Coved Internal Corner

**V-4125**

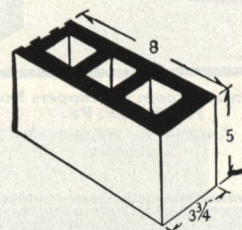
3 3/4"x5 7/8"x5" Bullnose External and Coved Internal Half Corner

**V-420**

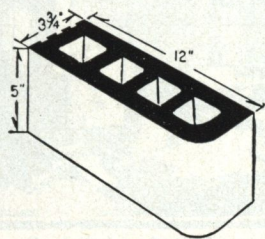
3 3/4"x12"x5" Square Full Closure

**V-426**

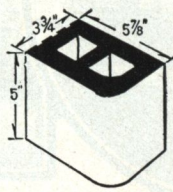
3 3/4"x5 7/8"x5" Square Half Closure

**V-4280**

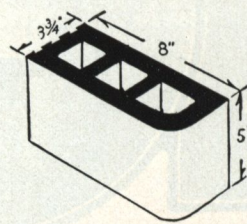
3 3/4"x8"x5" Square Pilaster

**V-430**

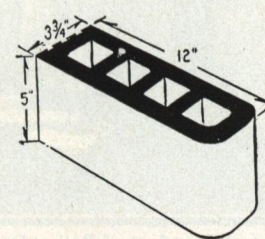
3 3/4"x12"x5" Single Bullnose Full Closure

**V-436**

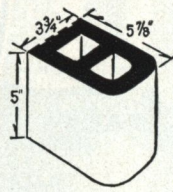
3 3/4"x5 7/8"x5" Single Bullnose Half Closure

**V-4380**

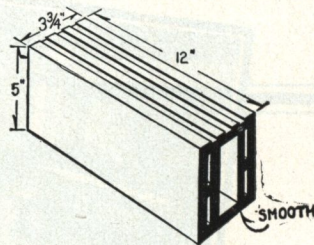
3 3/4"x8"x5" Single Bullnose Pilaster

**V-440**

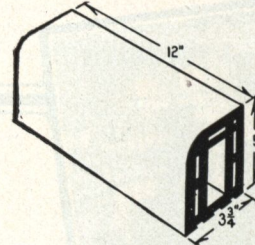
3 3/4"x12"x5" Double Bullnose Full Closure

**V-446**

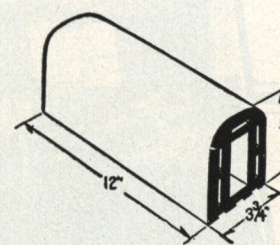
3 3/4"x5 7/8"x5" Double Bullnose Half Closure

**V-4500**

3 3/4"x5"x12" Square Sill or Lintel Tile. Also furnished in 5 7/8" and 8" lengths

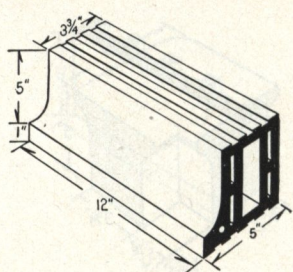
**V-460**

3 3/4"x5"x12" Single Bullnose Sill or Lintel Tile. Also furnished in 5 7/8" and 8" lengths

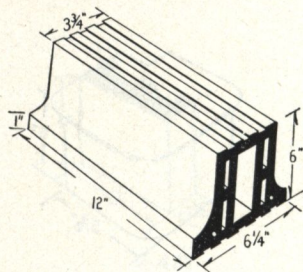
**V-4600**

3 3/4"x5"x12" Double Bullnose Coping Tile. Also furnished in 5 7/8" and 8" lengths

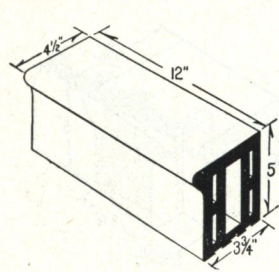
NATCO VITRITILE—3 3/4" SIZE

**V-470**

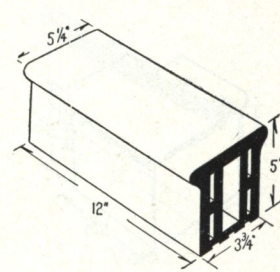
3 3/4" x 6" x 12" Single Cove Base. Furnished in 2", 3", 4", 5 7/8", 8" and 10" lengths

**V-4700**

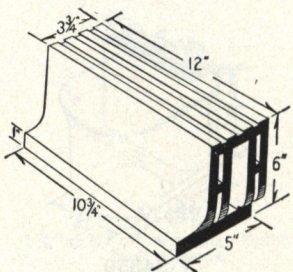
3 3/4" x 6" x 12" Double Cove Base. Furnished in 2", 3", 4", 5 7/8", 8" and 10" lengths

**V-480**

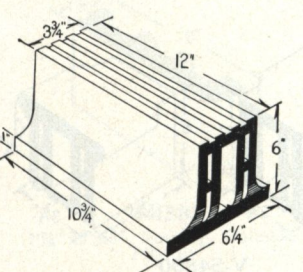
3 3/4" x 5" x 12" Single Wain-scot Cap. Furnished in 2", 3", 4", 5 7/8", 8" and 10" lengths

**V-4800**

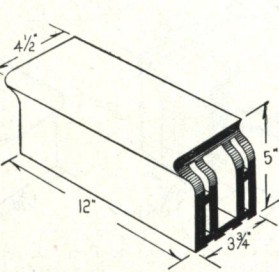
3 3/4" x 5" x 12" Double Wain-scot Cap. Furnished in 2", 3", 4", 5 7/8", 8" and 10" lengths

**V-K470-R**

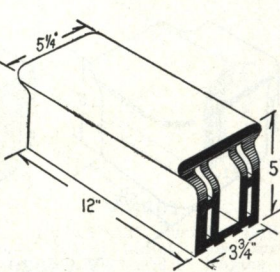
3 3/4" x 6" x 12" Single Cove Base, coped right (coped left opposite hand). Furnished in 3", 4", 5 7/8" and 8" lengths

**V-K4700**

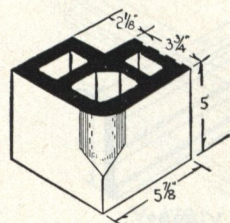
3 3/4" x 6" x 12" Double Cove Base, coped. Furnished in 3", 4", 5 7/8" and 8" lengths

**V-K480-R**

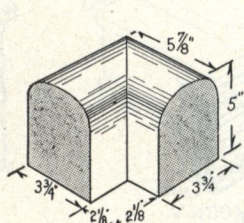
3 3/4" x 5" x 12" Single Wain-scot Cap, coped right (coped left opposite hand). Furnished in 3", 4", 5 7/8" and 8" lengths

**V-K4800**

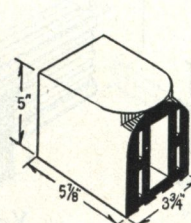
3 3/4" x 5" x 12" Double Wain-scot Cap, coped. Furnished in 3", 4", 5 7/8" and 8" lengths

**V-C4075**

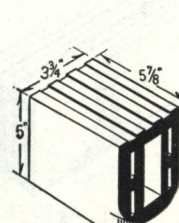
3 3/4" x 5 7/8" x 5" Chamfered Corner

**V-C4600**

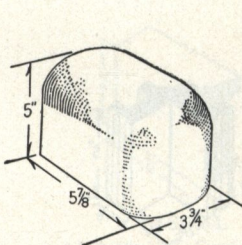
3 3/4" x 5 7/8" x 5" Double Bullnose Coping Square External and Internal Corner

**V-S4600**

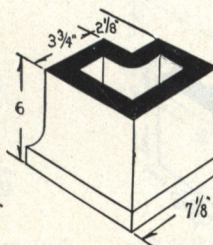
3 3/4" x 5" x 5 7/8" Combination Bullnose Sill or Lintel Starter, for use with Bullnose Sills, Lintels and Jamb

**V-C4620**

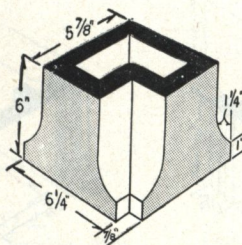
3 3/4" x 5 7/8" x 5" Double Bullnose Coping Bullnose External and Coved Internal Corner

**V-C4660**

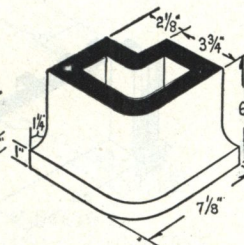
3 3/4" x 5" x 5 7/8" Double Bullnose Coping Closure. Used with V-4600

**V-C4700**

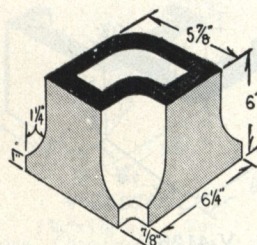
3 3/4" x 5 7/8" x 6" Square External and Internal Cove Base Corners

**V-C4710**

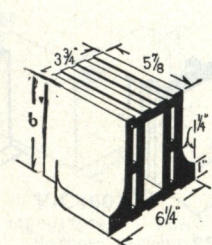
3 3/4" x 5 7/8" x 6" Bullnose External and Square Internal Cove Base Corner

**V-C4720**

3 3/4" x 5 7/8" x 6" Bullnose External and Coved Internal Cove Base Corner

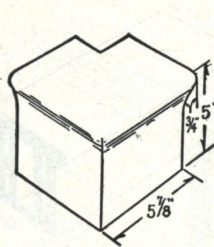
**V-S4700**

3 3/4" x 6" x 5 7/8" Double Cove Base Stop

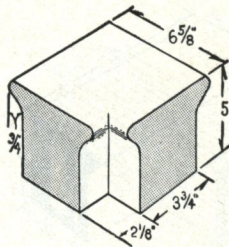
**V-S4750**

3 3/4" x 5 7/8" x 6" Cove Base Double Bullnose Closure

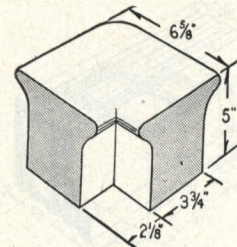
NATCO VITRITILE—3 3/4" SIZE

**V-C4800**

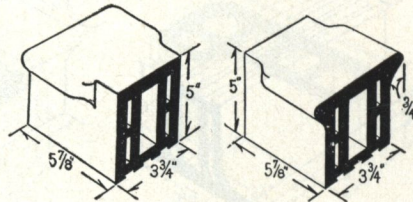
3 3/4" x 5 7/8" x 5" Square External and Internal Wainscot Cap Corner

**V-C4810**

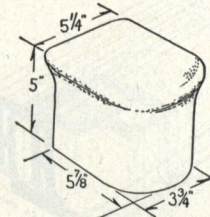
3 3/4" x 5 7/8" x 5" Bullnose External and Square Internal Wainscot Cap Corner

**V-C4820**

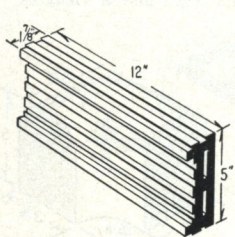
3 3/4" x 5" x 5 7/8" Bullnose External and Cove Internal Wainscot Cap Corner. 1 1/2" Radius of Internal Cove and Bullnose

**V-S4800**

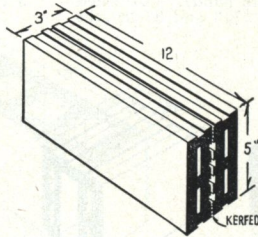
3 3/4" x 5" x 5 7/8" Double Wainscot Cap Stop

**V-S4850**

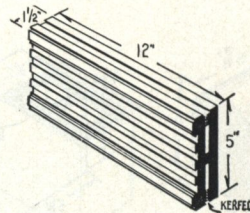
3 3/4" x 5 7/8" x 5" Wainscot Cap Double Bullnose Closure

**V-4900**

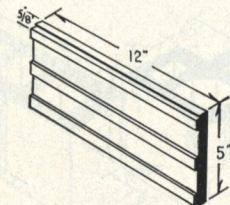
1 7/8" x 5" x 12" Furring Stretcher. Also furnished in 2", 3", 4", 5 7/8", 8" and 10" lengths

**Fig. A**

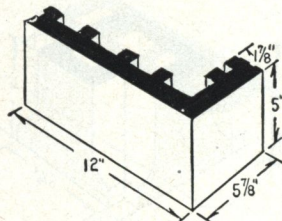
Refer to V-4901 and V-4902 at right

**V-4901**

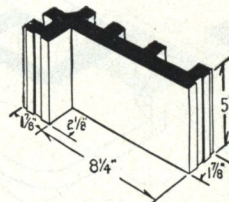
1 1/2" x 5" x 12" Slab. Shipped in pairs in single block, which is kerfed to split. (See Fig. A at left.) This slab furnished for use at pipe chases and conduit spaces. Furnished in 6" and 12" lengths only

**V-4902**

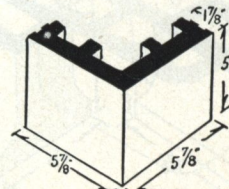
5/8" x 5" x 12" Slab. Shipped in pairs in single block, which is kerfed to split. (See Fig. A and V-4901 at left.) This slab furnished for use at electric conduits and outlets. Furnished in 12" length only

**V-4101**

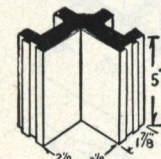
1 7/8" x 12" x 5" Furring, Square External Corner

**V-4102**

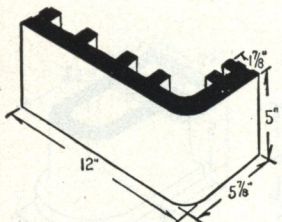
1 7/8" x 8 1/4" x 5" Furring, Square Internal Corner

**V-4106**

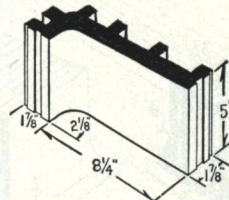
1 7/8" x 5 7/8" x 5" Furring, Square Half Corner. (External)

**V-4107**

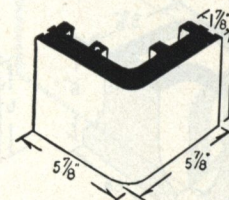
1 7/8" x 2 1/8" x 5" Furring, Square Half Corner. (Internal)

**V-4121**

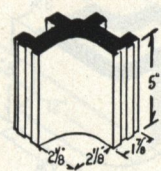
1 7/8" x 12" x 5" Furring, Bullnose External Corner

**V-4122**

1 7/8" x 8 1/4" x 5" Furring, Coved Internal Corner

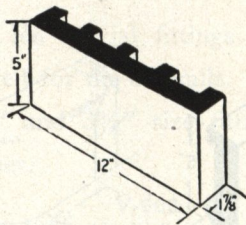
**V-4126**

1 7/8" x 5 7/8" x 5" Furring, Bullnose Half Corner. (External)

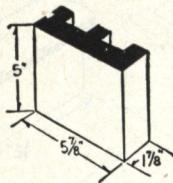
**V-4127**

1 7/8" x 2 1/8" x 5" Furring, Coved Half Corner. (Internal)

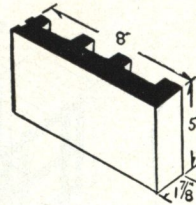
NATCO VITRITILE—3 3/4" and 1 7/8" SIZES



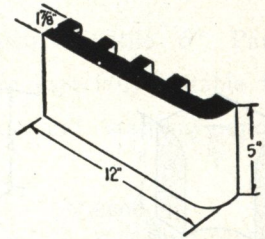
V-421
1 7/8"x12"x5" Furring, Square
Full Closure



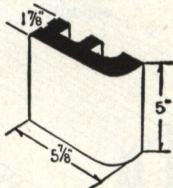
V-427
1 7/8"x5 5/8"x5" Furring, Square
Half Closure



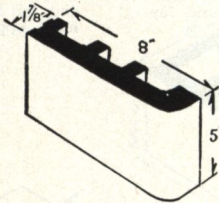
V-4282
1 7/8"x8"x5" Furring, Square
Pilaster



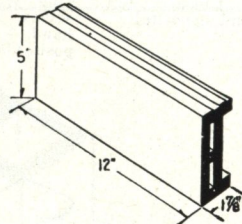
V-441
1 7/8"x12"x5" Furring, Bullnose
Full Closure



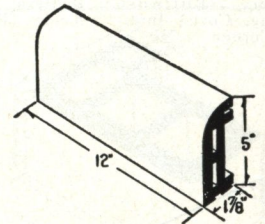
V-447
1 7/8"x5 5/8"x5" Furring, Bullnose
Half Closure



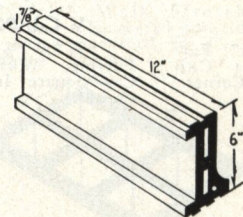
V-4382
1 7/8"x8"x5" Furring, Bullnose
Pilaster



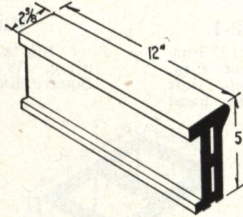
V-4501
1 7/8"x5"x12" Furring,
Square Sill or Lintel Tile. Also
furnished in 5 5/8" and 8" lengths.
(Note: one face and one edge
finished)



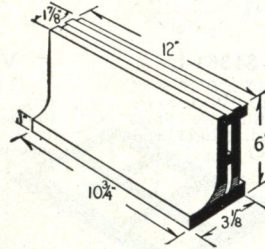
V-4601
1 7/8"x5"x12" Furring, Bull-
nose Sill or Lintel. Also fur-
nished in 5 5/8" and 8" lengths



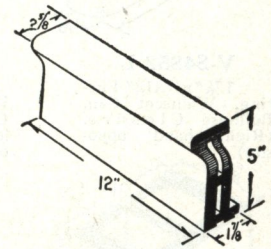
V-4701
1 7/8"x6"x12" Furring, Cove
Base. Furnished in 2", 3", 4",
5 5/8", 8" and 10" lengths



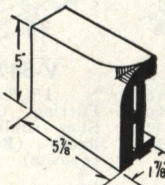
V-4801
1 7/8"x5"x12" Furring Wain-
scot Cap. Furnished in 2", 3",
4", 5 5/8", 8" and 10" lengths



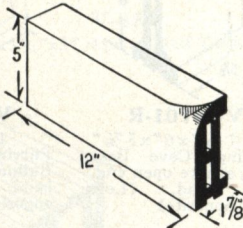
V-K4701-R
1 7/8"x6"x12" Furring, Cove
Base, coped right (coped left
opposite hand.) Furnished in 3",
4", 5 5/8" and 8" lengths



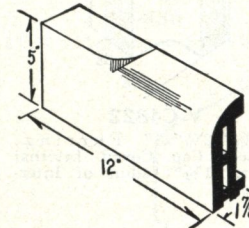
V-K4801-R
1 7/8"x5"x12" Furring Wain-
scot Cap, coped right. (Coped
left opposite hand.) Furnished
in 3", 4", 5 5/8" and 8" lengths



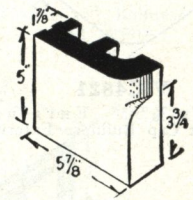
V-S4601-L
1 7/8"x5"x5 5/8" Furring, Bull-
nose Sill or Lintel Starter, left
hand. (Right hand opposite)



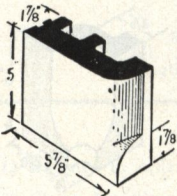
V-S4611-L
1 7/8"x5"x12" Furring, Bull-
nose Sill or Lintel Starter,
end type, left hand. (Right
hand opposite)



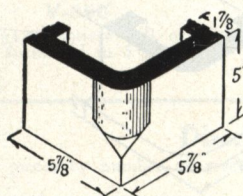
V-S4616-L
1 7/8"x5"x12" Furring, Bull-
nose Sill or Lintel Starter,
center type, left hand. (Right
hand opposite)



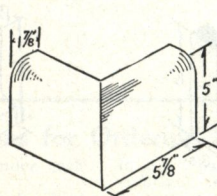
V-S4612-L
1 7/8"x5"x5 5/8" Furring,
Bullnose Sill Starter (for 1 7/8"
Sill) left hand. (Right hand
opposite)



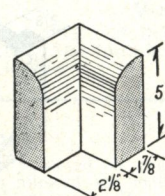
V-S4614-L
1 7/8"x5"x5 5/8" Fur-
ring, Bullnose Sill
Starter (for 3 3/4" Sill)
left hand. (Right hand
opposite)



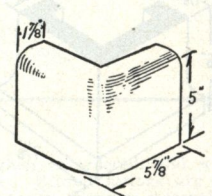
V-C4076
1 7/8"x5 5/8"x5" Fur-
ring, Chamfered Corner.
(External)



V-C4601
1 7/8"x5 5/8"x5" Fur-
ring, Bullnose Coping,
Square External Corner

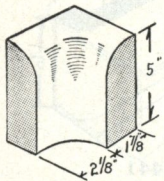


V-C4602
1 7/8"x2 1/8"x5" Fur-
ring, Bullnose Coping,
Square Internal Corner

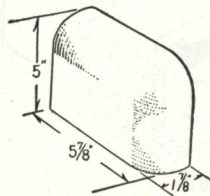


V-C4621
1 7/8"x5 5/8"x5" Fur-
ring, Bullnose Coping,
Bullnose External Cor-
ner

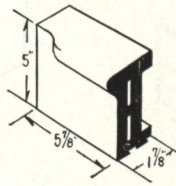
NATCO VITRITILE—1 7/8" SIZE

**V-C4622**

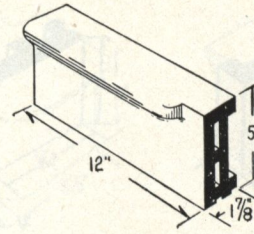
1 7/8" x 2 1/8" x 5" Furring, Bullnose Coping, Coved Internal Corner

**V-C4661-L**

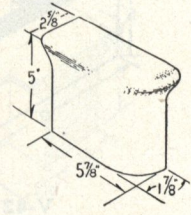
1 7/8" x 5" x 5 7/8" Furring, Bullnose Coping Closure, left hand. (Right hand opposite)

**V-S4801-R**

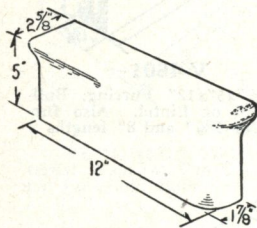
1 7/8" x 5" x 5 7/8" Furring, Wainscot Cap Stop, square open end, right hand. (Left hand opposite)

**V-S4811-L**

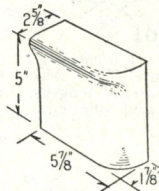
1 7/8" x 5" x 12" Furring, Wainscot Cap Stop, square open end, left hand. (Right hand opposite)

**V-S4851-L**

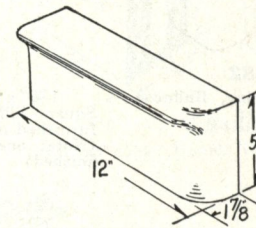
1 7/8" x 5 7/8" x 5" Furring, Wainscot Cap Bullnose Closure, left hand. (Right hand opposite)

**V-S4852-L**

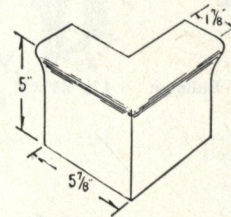
1 7/8" x 5" x 12" Furring, Wainscot Cap, Bullnose Closure. (Right hand opposite)

**V-S4861-L**

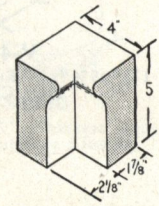
1 7/8" x 5 7/8" x 5" Furring, Wainscot Cap, Bullnose Stop, left hand. (Right hand opposite)

**V-S4812-L**

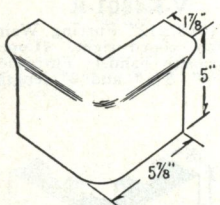
1 7/8" x 5" x 12" Furring, Wainscot Cap, Bullnose Stop, left hand. (Right hand opposite)

**V-C4801**

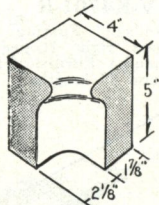
1 7/8" x 5 7/8" x 5" Furring, Wainscot Cap Square External Corner

**V-C4802**

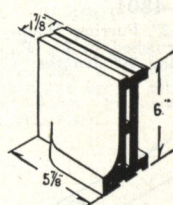
1 7/8" x 2 1/8" x 5" Furring, Wainscot Cap Square Internal Corner

**V-C4821**

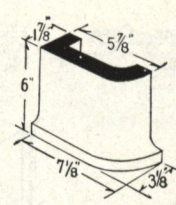
1 7/8" x 5 7/8" x 5" Furring, Wainscot Cap Bullnose External Corner

**V-C4822**

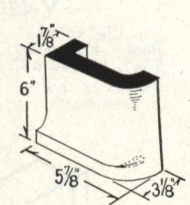
1 7/8" x 2 1/8" x 5" Furring, Wainscot Cap Coved Internal Corner. 1 1/2" radius of Internal Cove

**V-S4701-R**

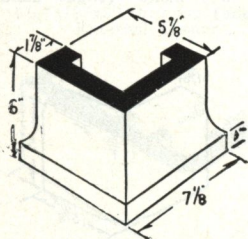
1 7/8" x 6" x 5 7/8" Furring, Cove Base Stop, square open end, right hand. (Left hand opposite)

**V-S4751-L**

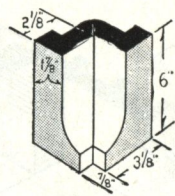
1 7/8" x 5 7/8" x 6" Furring, Cove Base Bullnose Closure, left hand. (Right hand opposite)

**V-S4761-L**

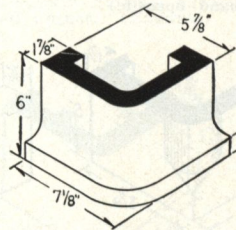
1 7/8" x 5 7/8" x 6" Furring, Cove Base Stop, Bullnose, left hand. (Right hand opposite)

**V-C4701**

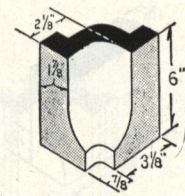
1 7/8" x 5 7/8" x 6" Furring, Cove Base Square External Corner

**V-C4702**

1 7/8" x 2 1/8" x 6" Furring, Cove Base Square Internal Corner

**V-C4721**

1 7/8" x 5 7/8" x 6" Furring, Cove Base Bullnose External Corner

**V-C4722**

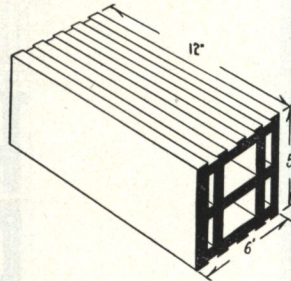
1 7/8" x 2 1/8" x 6" Furring, Cove Base Coved Internal Corner. 1 1/2" radius of Internal Cove

NATCO VITRITILE—1 7/8" SIZE

No special fittings are required for the 6" walls. Use the 17/8" and 33/4" size fittings together.

V-600

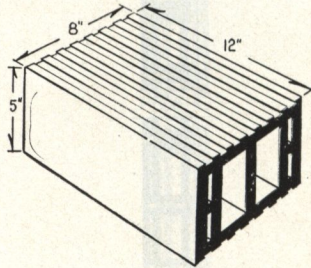
6"x5"x12" Wall Stretcher
(smooth two sides)



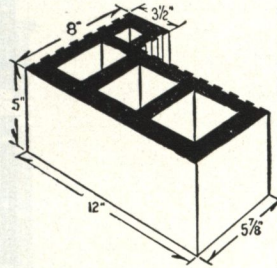
Natco Vitritile 6" Partitions are especially suitable for elevators and stairway enclosures.

V-6000

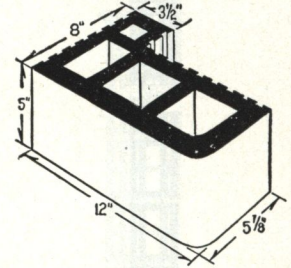
6"x5"x12" Wall Stretcher
(smooth one side, scored one side).
Both shapes furnished in 2", 3", 4", 5 7/8", 8" and 10" lengths

**V-800**

8"x5"x12" Wall Stretcher
(smooth two sides)

**V-810**

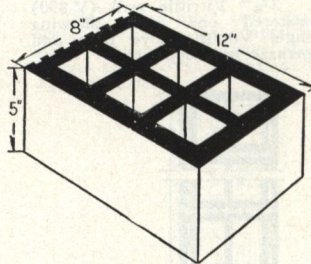
8"x12"x5" Square Corner

**V-811**

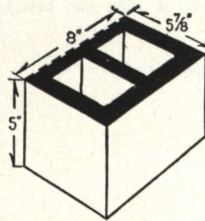
8"x12"x5" Bullnose Corner

V-8000

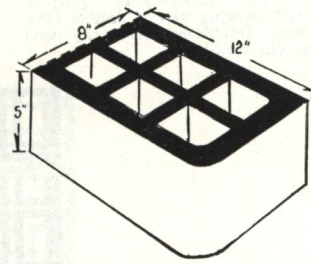
8"x5"x12" Wall Stretcher
(smooth one side, scored one side).
Both shapes furnished in 3", 4", 5 7/8" and 8" lengths

**V-820**

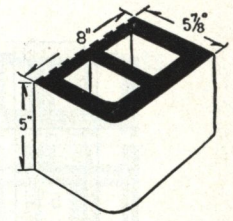
8"x12"x5" Square Full Closure

**V-826**

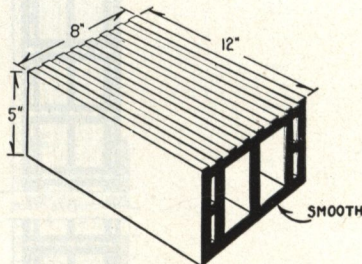
8"x5 7/8"x5" Square Half Closure

**V-830**

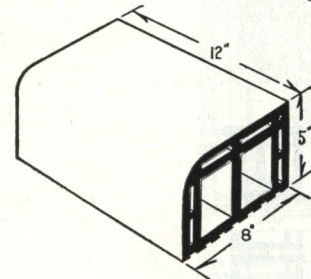
8"x12"x5" Bullnose Full Closure

**V-836**

8"x5 7/8"x5" Bullnose Half Closure

**V-850**

8"x5"x12" Square Sill or Lintel. Also furnished in 5 7/8" and 8" lengths

**V-860**

8"x5"x12" Bullnose Sill or Lintel. Also furnished in 5 7/8" and 8" lengths

Directions for Ordering Shapes

(1) Be sure to order all pieces by number as given under each shape.

(2) *Short Lengths*—All numbers under shapes in which short lengths are furnished, denote 12" lengths. When ordering shorter lengths give this same number with length wanted. For example, if a 3" length of V-400 is wanted, mark V-400-3", or, if the half or 5 7/8" length is desired, order V-400-6".

(3) 3 3/4" corners, jambs, cove base and wainscot caps, etc. (Shapes V-420, V-426, V-430, V-436, V-4100, V-4110, V-4120, V-470 and V-480) will be furnished scored on one side for use with shape V-890

in 3 3/4" partition plastered on one side, when so ordered, and when sufficient time is allowed for manufacture. Scored fittings are not ordinarily carried in stock. Be sure to specify whether external or internal side of corners are to be scored.

(4) When ordering corners in one face material (Shapes V-4100, V-4110, V-4120, V-C4700, V-C4710, V-C4720, V-C4800, V-C4810 and V-C4820) of select one face material, do not fail to specify whether the select face is internal or external.

(5) Mitered and other unusual shapes may be procured by special agreement, but must be submitted for approval before ordering.

NATCO VITRITILE—6" and 8" SIZES

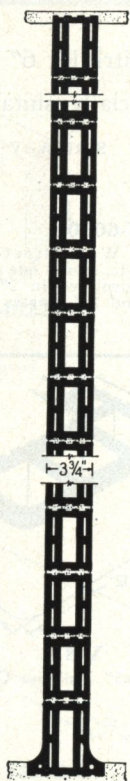


Fig. 1

Two faced 3 3/4" Vitritile wall (V-400) showing use of double cove base

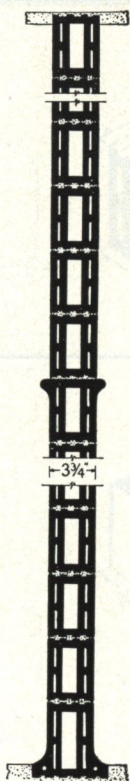


Fig. 2

Two faced 3 3/4" Vitritile wall showing use of double cove base. Double wainscot cap used as chair rail

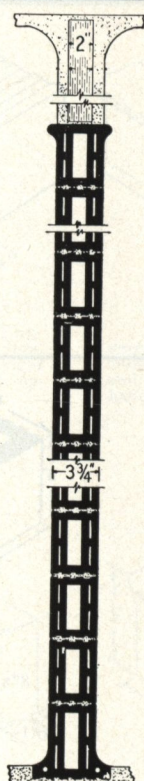


Fig. 3

Two faced 3 3/4" Vitritile wall showing double cove base. Double wainscot cap used near ceiling

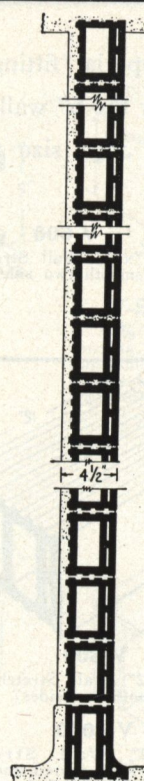


Fig. 4

3 3/4" Vitritile wall (V-890) plastered one side, showing single Vitritile cove base and terrazzo base opposite

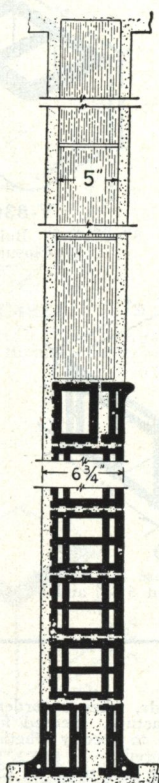


Fig. 9

6" Vitritile wall (V-6000) illustrating wide adaptability of Vitritile to secure any desired effect

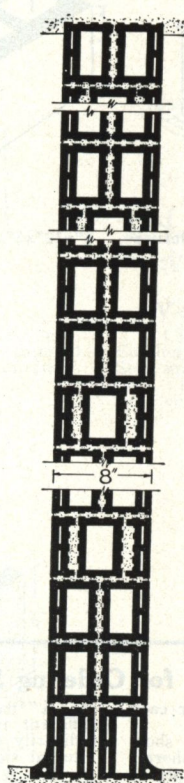


Fig. 10

8" Vitritile wall (V-890 and V-4900 bonded)

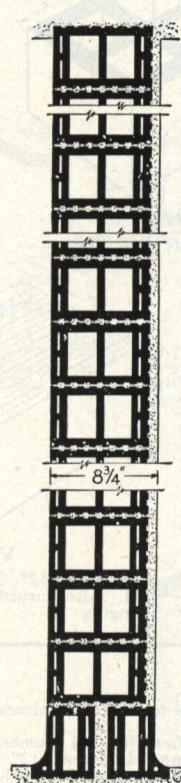
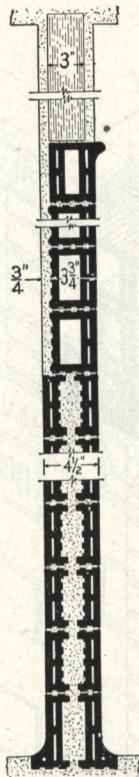


Fig. 11

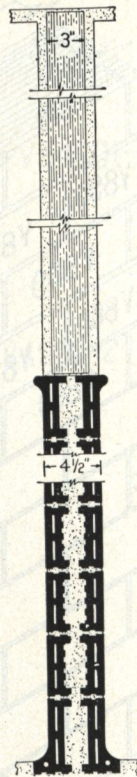
8" Vitritile wall (V-8000) plastered one side

DETAILS OF DIFFERENT WIDTHS OF WALL SECTIONS

SCALE 3/4" = 1'-0"

**Fig. 5**

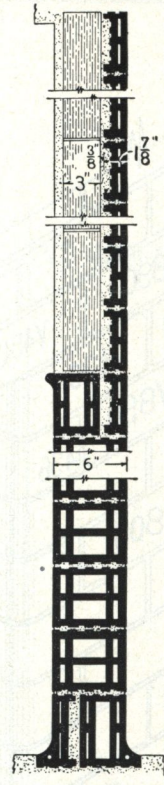
4 1/2" Vitritile two faced wall, illustrating the adaptability of Vitritile where plaster above begins at different elevations on opposite sides

**Fig. 6**

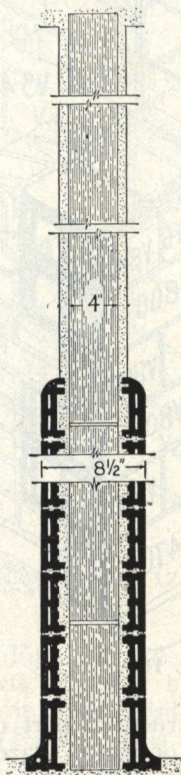
4 1/2" Vitritile two faced wall (V-4900) wainscot effect. Wainscot cap used as chair rail

**Fig. 7**

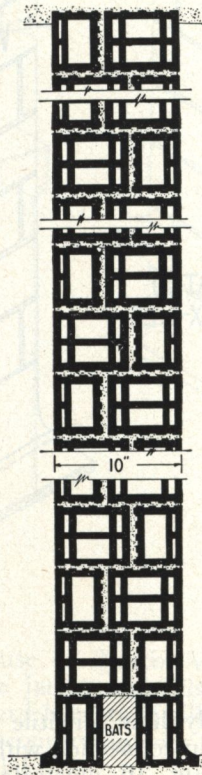
6" Vitritile wall (V-890 and V-4900 bonded)

**Fig. 8**

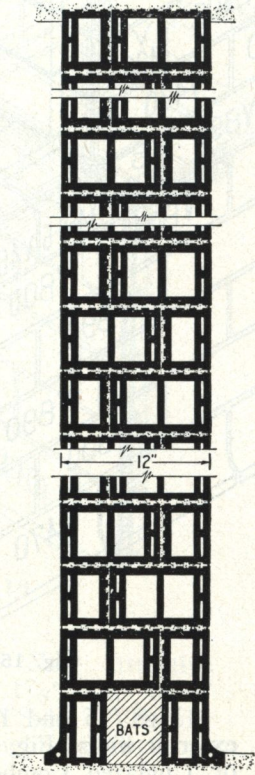
6" Vitritile wall (V-600) with plaster one side above chair rail

**Fig. 12**

1 7/8" Vitritile furring used as wainscoting

**Fig. 13**

10" Vitritile wall (V-600 or 6000 and V-890 bonded)

**Fig. 14**

12" Vitritile wall (V-800 or 8000 and V-890 bonded)

DETAILS OF DIFFERENT WIDTHS OF WALL SECTIONS

SCALE 3/4" = 1'-0"

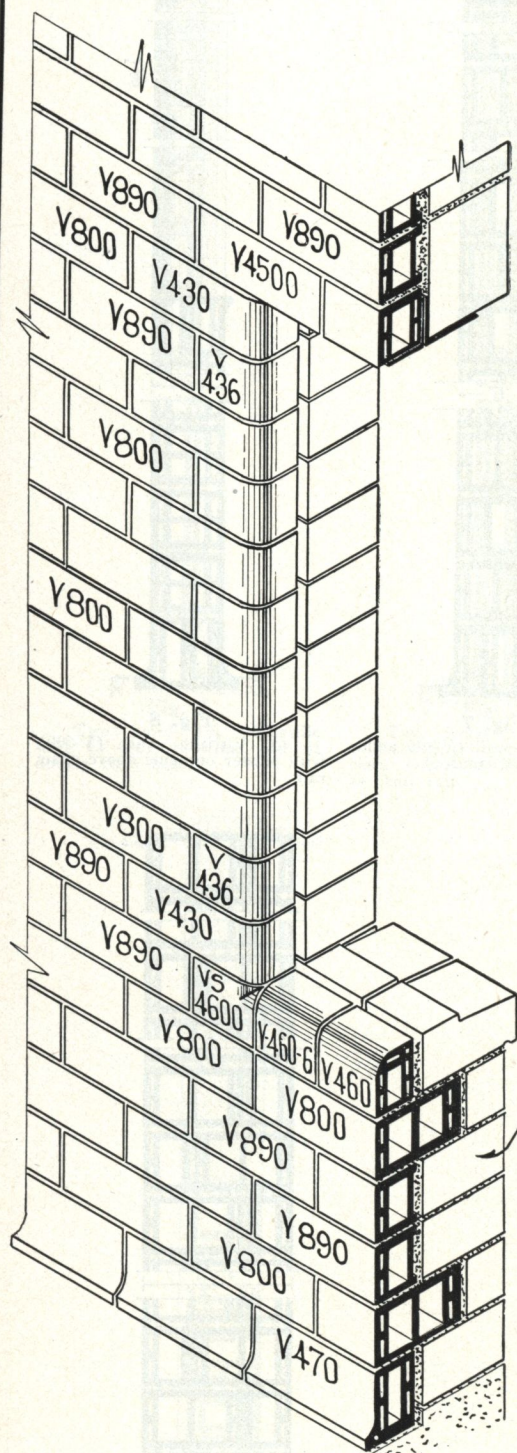


Fig. 15

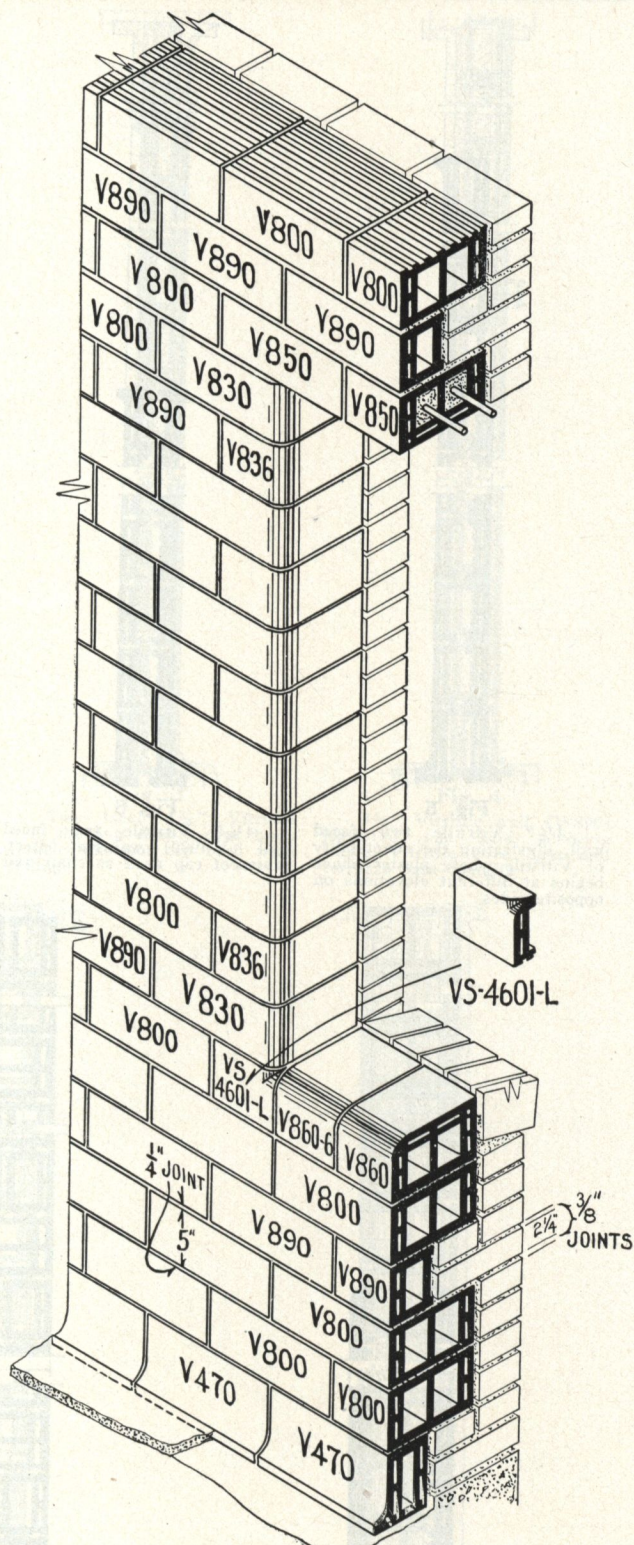


Fig. 16

Figs. 15 and 16 illustrate clearly how Vitritile is used as the structural part of exterior walls. Fig. 15 shows its use in connection with Natco Tex-Tile or Natco Glazed or Unglazed Combed Face Tile. Fig. 16 illustrates the same construction with an exterior of brick. Note perfect bond for maximum strength.

DETAILS OF VITRITILE CONSTRUCTION

SCALE $\frac{3}{4}'' = 1'-0''$

NATCO PAGE 18

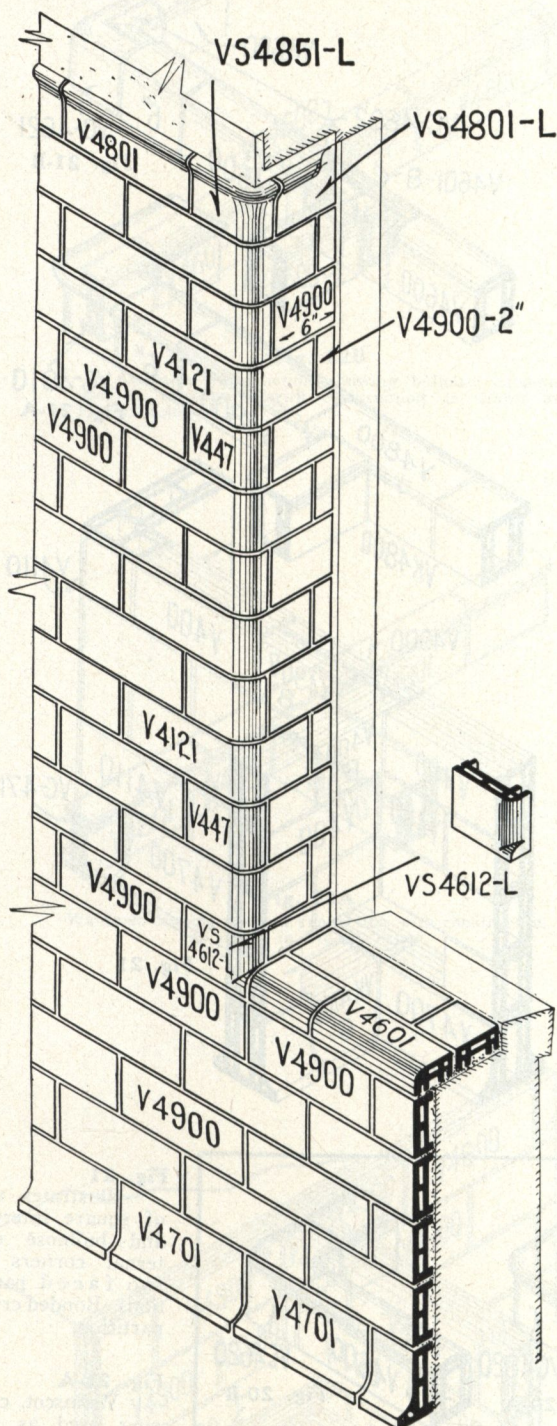


Fig. 17

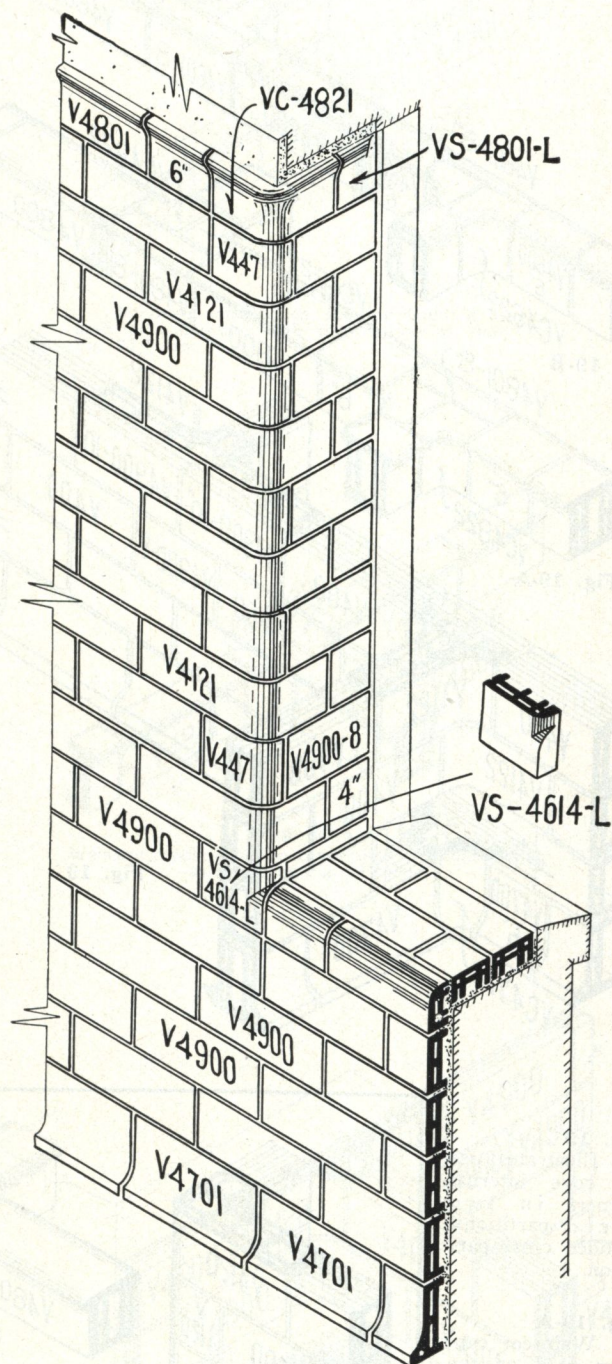


Fig. 18

Figs. 17 and 18 illustrate the use of Natco Vitritile Furring. Note attractive effects produced by use of bullnose jambs and sills. Choice of sills $1\frac{7}{8}$ ", $3\frac{3}{4}$ " or 5" high is made possible by three standard heights of sill starters, namely VS-4612, VS-4614 or VS-4601. This is very helpful in connection with the question of heights of sills from floors. See also Fig. 16 for VS-4601-L.

DETAILS OF VITRITILE CONSTRUCTION

SCALE $\frac{3}{4}$ " = 1'-0"

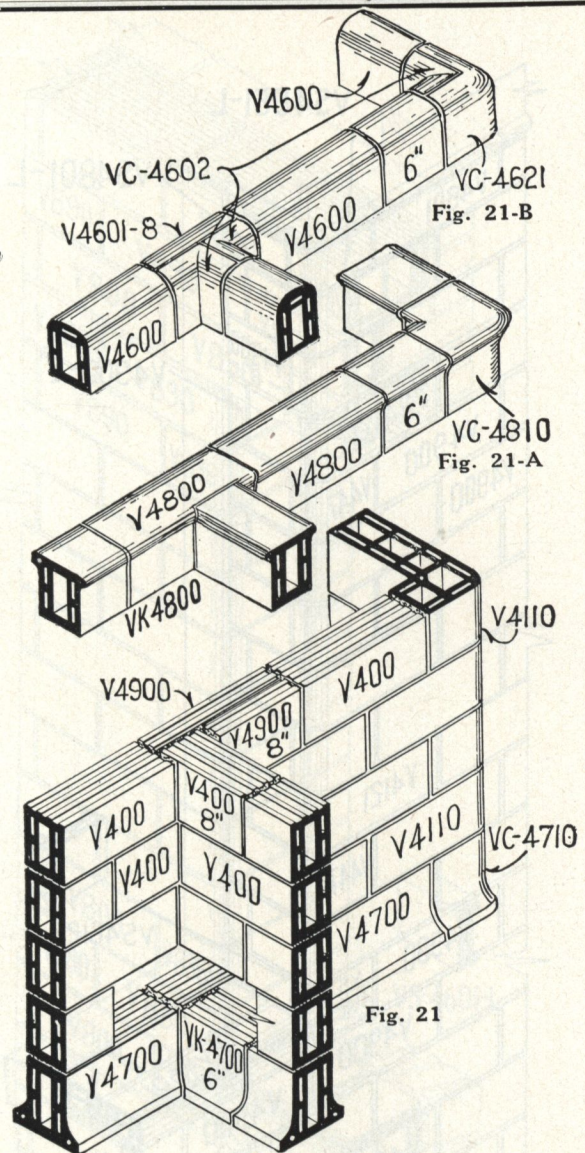
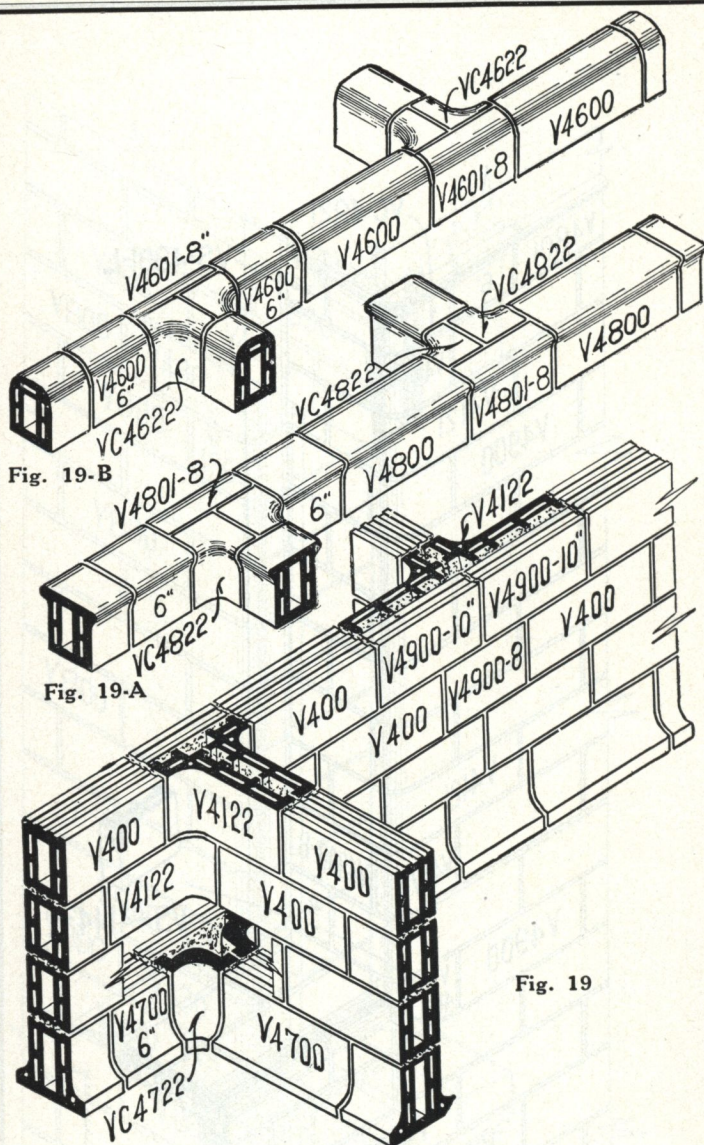


Fig. 19

Illustrates use of cove internal corners in two faced partitions. Bonded cross partition.

Fig. 19-A

Wainscot capping used as top course of low partitions. See Fig. 19.

Fig. 19-B

Alternate construction showing bullnose coping as top course for low partitions. See Fig. 19.

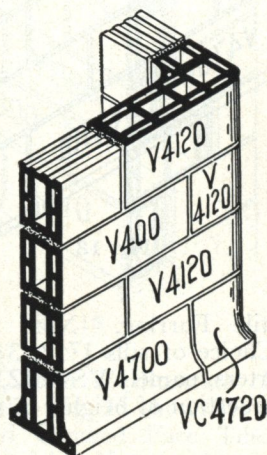


Fig. 20

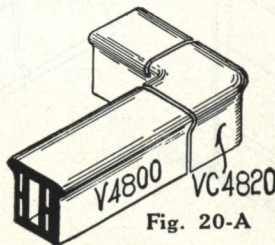


Fig. 20

Illustrates use of cove internal and bullnose external corners in two faced partitions.

Fig. 20-A

Wainscot capping used as top course of low partitions. See Fig. 20.

Fig. 20-B

Alternate construction showing bullnose coping as top course of low partitions. See Fig. 20.

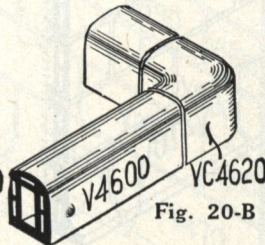


Fig. 21

Illustrates use of square internal and bullnose external corners in two faced partitions. Bonded cross partition.

Fig. 21-A

Wainscot capping used as top course of low partitions. See Fig. 21.

Fig. 21-B

Alternate construction showing bullnose coping as top course for low partitions. See Fig. 21.

DETAILS OF VITRITILE CONSTRUCTION

SCALE $\frac{3}{4}" = 1'-0"$

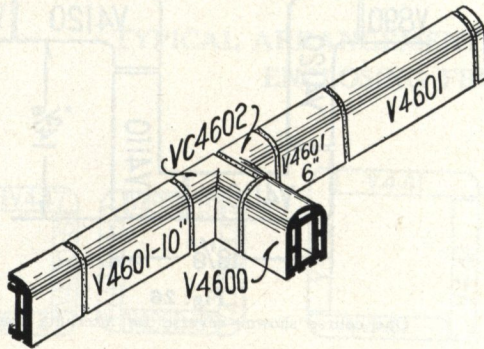


Fig. 22B

Alternate construction showing bullnose capping used in connection with construction as shown in Fig. 22 below

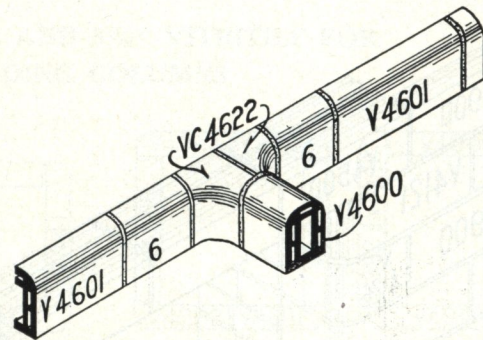


Fig. 23B

Alternate construction showing bullnose capping used in connection with construction as shown in Fig. 23 below

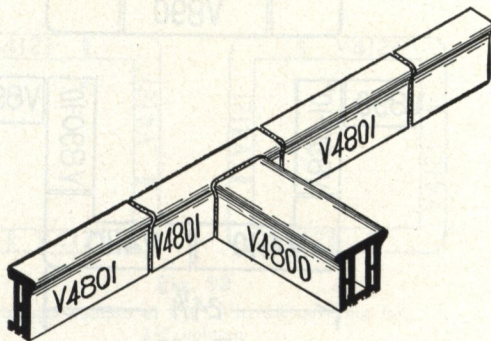


Fig. 22A

Wainscot capping used in connection with construction as shown in Fig. 22 below

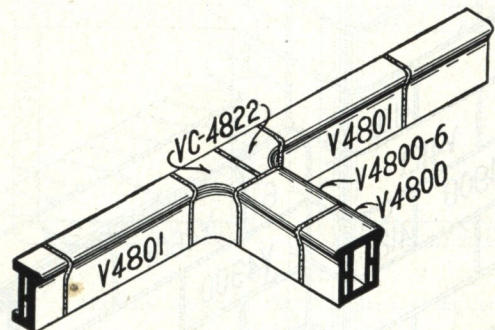


Fig. 23A

Wainscot capping used in connection with construction as shown in Fig. 23 below

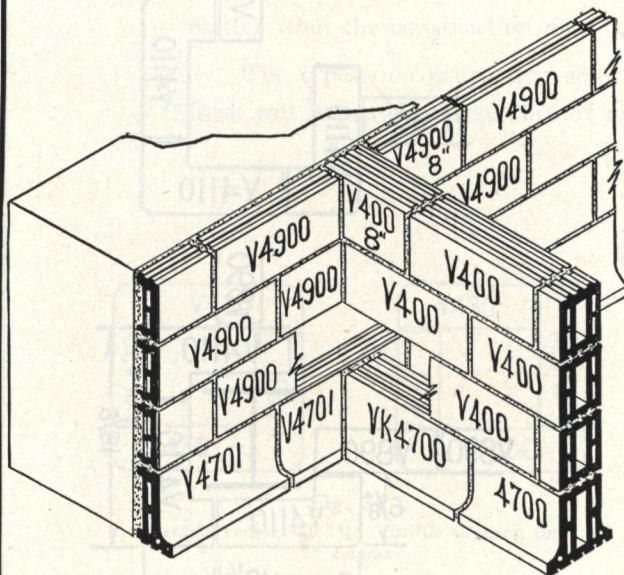


Fig. 22

Shows method of bonding partitions into furred walls—square internal corners

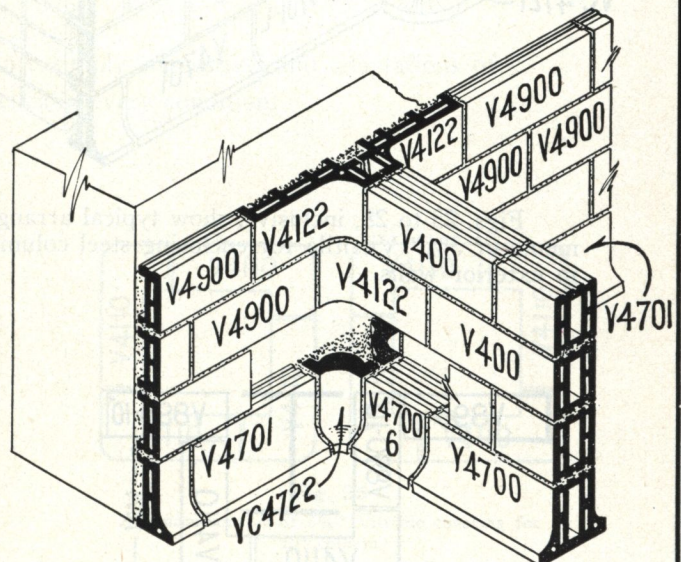


Fig. 23

Shows method of bonding two faced partitions into furred walls—coved internal corners

DETAILS OF VITRITILE CONSTRUCTION

SCALE $\frac{3}{4}'' = 1'-0''$

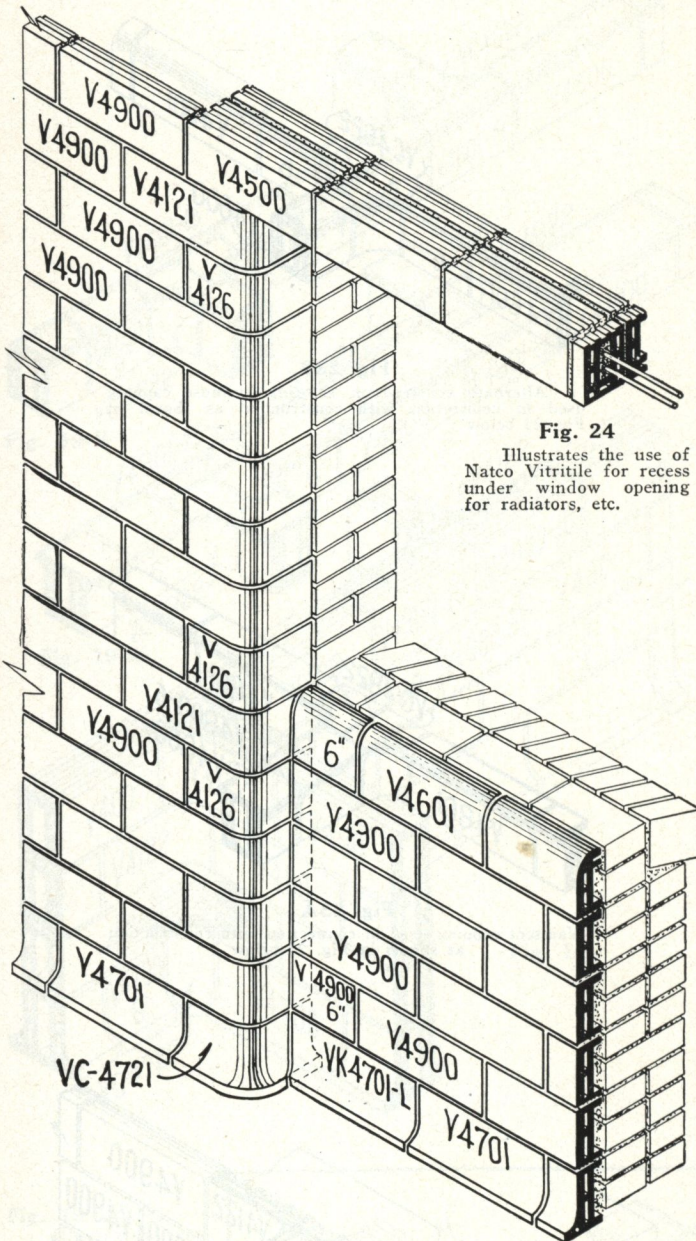


Fig. 24

Illustrates the use of Natco Vitritile for recess under window opening for radiators, etc.

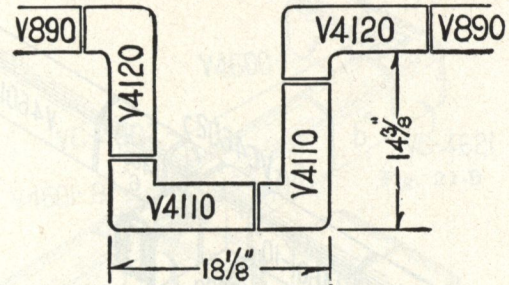


Fig. 26

One course shown—reverse for alternate courses

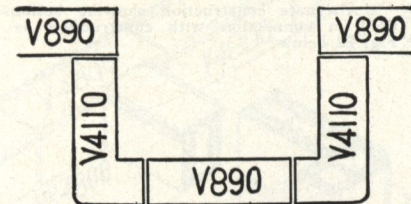


Fig. 27

Alternate courses shown

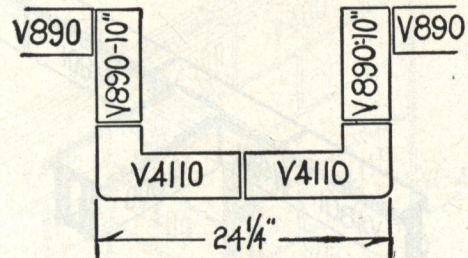


Fig. 28

Alternate courses shown

Figs. 25 to 28, inclusive, show typical arrangements of 3 3/4" Vitritile for enclosing steel columns in exterior walls.

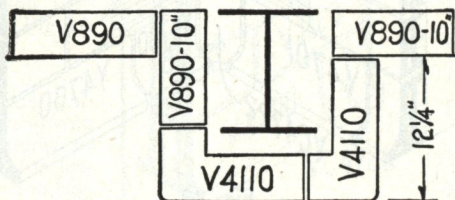
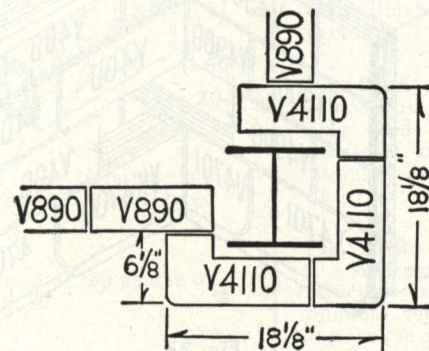


Fig. 25

One course shown, reverse for alternate course



DETAILS OF VITRITILE CONSTRUCTION

SCALE 3/4" = 1'-0"

TYPICAL ARRANGEMENT OF 1 $\frac{7}{8}$ " AND 3 $\frac{3}{4}$ " VITRITILE FOR ENCLOSING FREE STANDING COLUMNS

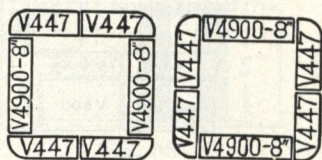


Fig. 29

Alternate courses of 1 $\frac{7}{8}$ " Vitritile covering for 8" column

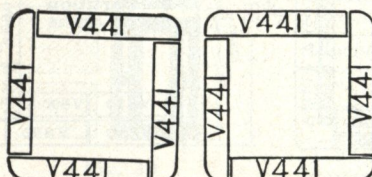


Fig. 30

Alternate courses of 1 $\frac{7}{8}$ " Vitritile covering for 10" column

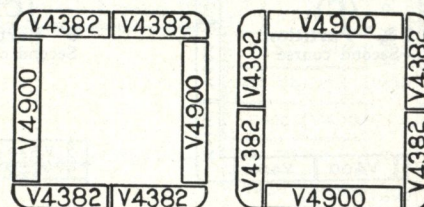


Fig. 31

Alternate courses of 1 $\frac{7}{8}$ " Vitritile covering for 12" column

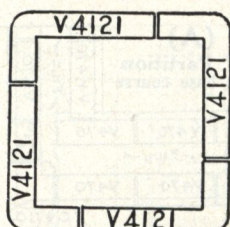


Fig. 32

Alternate courses of 1 $\frac{7}{8}$ " Vitritile covering for 14" column

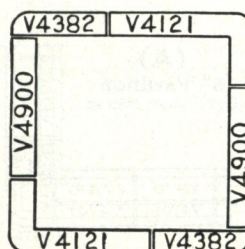
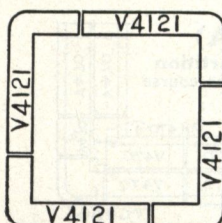
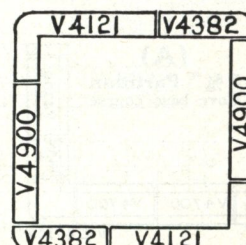


Fig. 33

Alternate courses of 1 $\frac{7}{8}$ " Vitritile covering for 16" column



Illustrations on this page are typical of what can be done with Natco Vitritile to fireproof and permanently beautify the structural members of buildings, no matter what the construction may be.

The types of construction shown are simply suggestive, and adaptations of them can be made to take care of practically every condition.

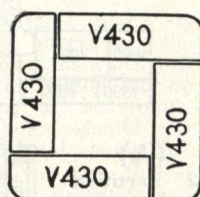


Fig. 34

Alternate courses of 3 $\frac{3}{4}$ " Vitritile covering for 8" column

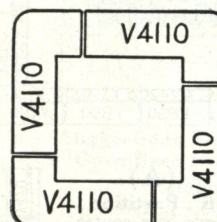
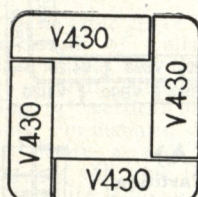
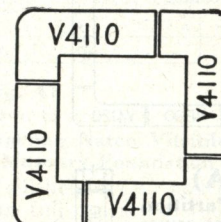


Fig. 35

Alternate courses of 3 $\frac{3}{4}$ " Vitritile covering for 10" column



DETAILS OF VITRITILE CONSTRUCTION

SCALE $\frac{3}{4}$ " = 1'-0"

(NOTE: Wainscot cap course similar to "A" course)

(NOTE: Wainscot cap course similar to "A" course)



(NOTE: Wainscot cap course similar to "A" course)

(NOTE: Wainscot cap course similar to "A" course)



SCALE $\frac{3}{8}" = 1'-0"$

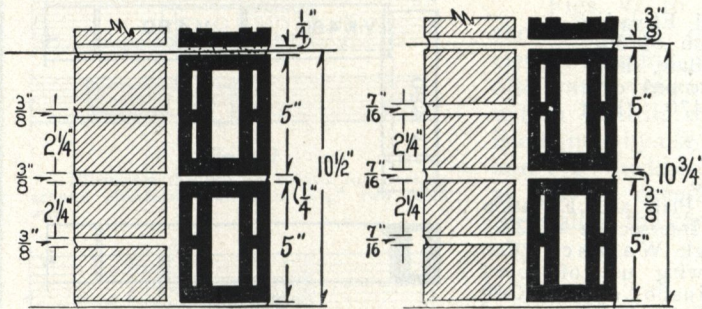


Fig. 38

Fig. 39

Typical Relationship Between Brick and Tile Mortar Joints

Scale 1 1/2" = 1' 0"

HEIGHT TABLE

Tile { 3 3/4" x 5" x 12"
8" x 5" x 12"
Joints 1/4"

Course No.	Height
1	5 1/4"
2	10 1/2"
3	1' 3 3/4"
4	1' 9"
5	2' 2 1/4"
6	2' 7 1/2"
7	3' 0 3/4"
8	3' 6"
9	3' 11 1/4"
10	4' 4 1/2"
11	4' 9 3/4"
12	5' 3"
13	5' 8 1/4"
14	6' 1 1/2"
15	6' 6 3/4"
16	7' 0"
17	7' 5 1/4"
18	7' 10 1/2"
19	8' 3 3/4"
20	8' 9"
21	9' 2 1/4"
22	9' 7 1/2"
23	10' 0 3/4"
24	10' 6"
25	10' 11 1/4"
26	11' 4 1/2"
27	11' 9 3/4"
28	12' 3"
29	12' 8 1/4"
30	13' 1 1/2"
31	13' 6 3/4"
32	14' 0"
33	14' 5 1/4"
34	14' 10 1/2"
35	15' 3 3/4"
36	15' 9"
37	16' 2 1/4"
38	16' 7 1/2"
39	17' 0 3/4"
40	17' 6"

LENGTH TABLE

Tile { 3 3/4" x 5" x 12"
8" x 5" x 12"
Joints 1/4"

No. Tile	Length
1	1' 0"
1 1/2	1' 6 1/8"
2	2' 0 1/4"
2 1/2	2' 6 3/8"
3	3' 0 1/2"
3 1/2	3' 6 5/8"
4	4' 0 3/4"
4 1/2	4' 6 7/8"
5	5' 1"
5 1/2	5' 7 1/8"
6	6' 1 1/4"
6 1/2	6' 7 3/8"
7	7' 1 1/2"
7 1/2	7' 7 5/8"
8	8' 1 3/4"
8 1/2	8' 7 7/8"
9	9' 2"
9 1/2	9' 8 1/8"
10	10' 2 1/4"
10 1/2	10' 8 3/8"
11	11' 2 1/2"
11 1/2	11' 8 5/8"
12	12' 2 3/4"
12 1/2	12' 8 7/8"
13	13' 3"
13 1/2	13' 9 1/8"
14	14' 3 1/4"
14 1/2	14' 9 3/8"
15	15' 3 1/2"
15 1/2	15' 9 5/8"
16	16' 3 3/4"
16 1/2	16' 9 7/8"
17	17' 4"
17 1/2	17' 10 1/8"
18	18' 4 1/4"
18 1/2	18' 10 3/8"
19	19' 4 1/2"
19 1/2	19' 10 5/8"
20	20' 4 3/4"
20 1/2	20' 10 7/8"

The table above is used to determine the heights of walls which will best lay up without cutting tile, using 1/4" bed joints. For instance, should you desire to build a wall 7' 0" high you will note that it will require 16 courses.

By varying the thickness of the mortar joints these dimensions may be slightly changed.

The dimensions herein given are for the convenience of estimating only, and we, therefore, recommend that all joints be made uniform, 1/4", 3/8" or whatever size may be agreed upon, and disregard bond to obtain the best results.

The table above shows the length of walls and pilasters that will best lay up without cutting tile, using 1/4" vertical mortar joints. For instance, should you desire a wall 9'-2" long you will note that it will require 9 tile.

To find width of openings, add two mortar joints or 1/2" to each dimension above.

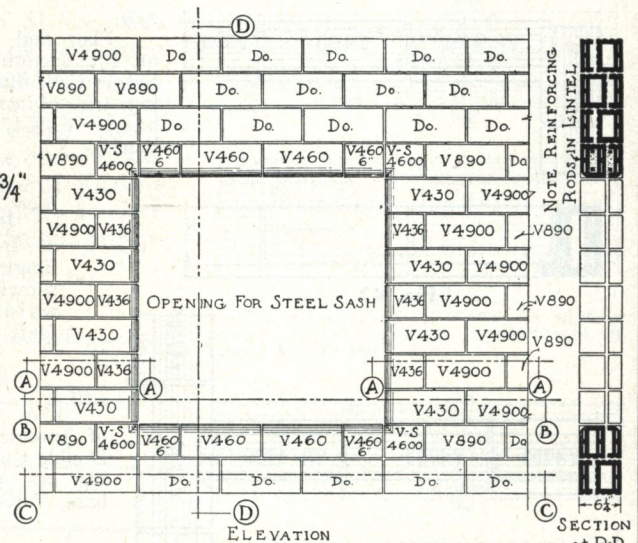


Fig. 40

Treatment of Openings in 6" Natco Vitritile Partition for Steel Sash

Illustration shows use of bullnose sills, lintels and jambs; V-600 or V-6000 may be used in place of V-890 and V-4900

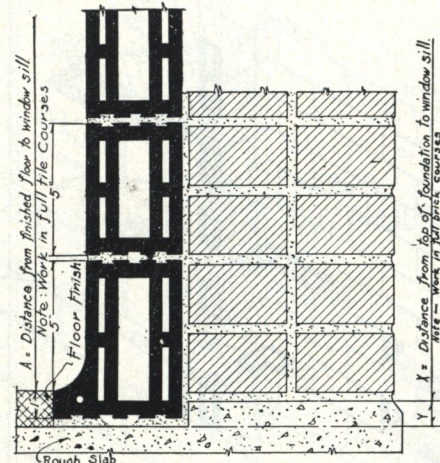


Fig. 41

Not drawn to scale

Suggestions for Starting Natco Vitritile Cove Base from Masonry Foundation

- (1) Establish sill height (A) above the finished floor in full courses of tile.
- (2) Having sill length (A) and thickness of brick courses, distance (X) can be determined.
- (3) With top of foundation fixed, figure distance (Y) to suit thickness of floor finish.

Note: Illustration shows 1/4" joints in Vitritile and 3/8" exterior brick joints.

NATCO VITRITILE—DESIGN DATA

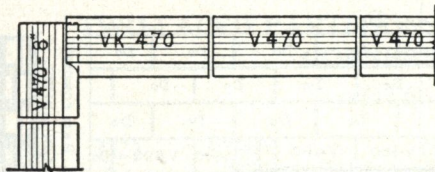


Fig. 42

Left
Plan and Elevation
of Intersection of $\frac{3}{4}$ "
Single Cove Base, showing
use of coped cove
base, V-K470. (left
hand.)

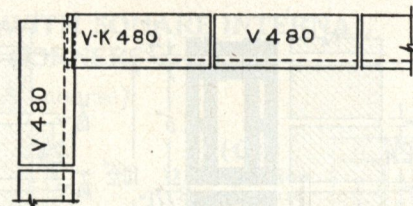


Fig. 43

Right
Plan and Elevation
of Intersection of $\frac{3}{4}$ "
Single Wainscot Cap
showing use of coped
wainscot cap, V-K480
(left hand).

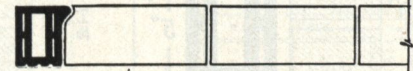


Fig. 44

Left
Plan and Elevation
of Intersection of $\frac{3}{4}$ "
Double Cove Base showing
use of coped cove
base, V-K4700.

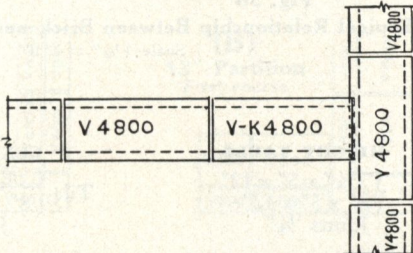


Fig. 45

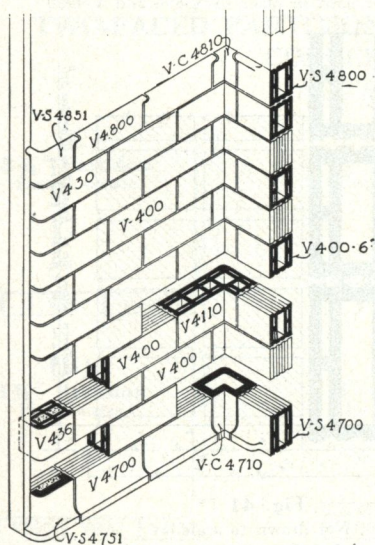
Right
Plan and Elevation
of Intersection of $\frac{3}{4}$ "
Double Wainscot Cap
showing use of coped
wainscot cap, V-K4800.

Scale $\frac{3}{4}$ " = 1' 0"

DOOR CONSTRUCTION—TWO-FACE PARTITIONS

$\frac{3}{4}$ " double-faced partition showing three types of door construction. Note use of various types of door stops and method of filling jamb

tiles with mortar at door at left to stiffen the construction.



At left hand, door stops VS-4761 and VS-4861 may be used instead of VS-4751 and VS-4851 respectively.

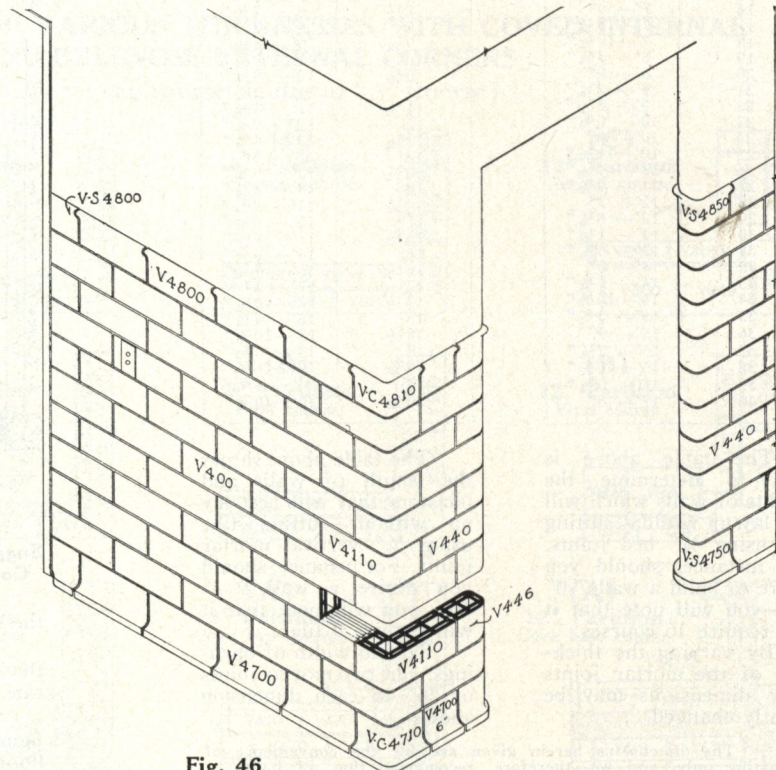
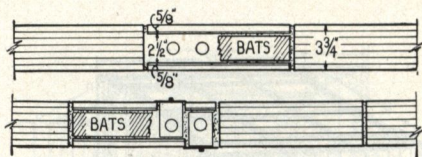


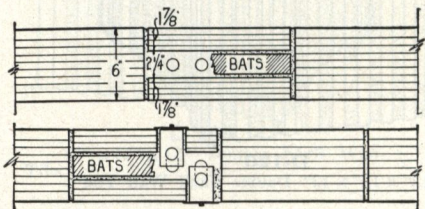
Fig. 46

Not drawn to scale

NATCO VITRITILE DETAILS

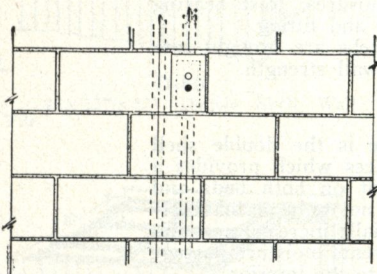
**Fig. 47**

Illustrates the use of V-4902 for working around electrical conduit in 3 3/4" two faced wall

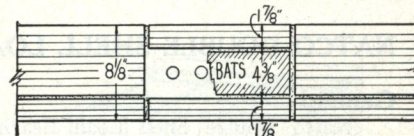
**Fig. 48**

Illustrates the use of V-4900 for working around electrical conduit in a 6" wall

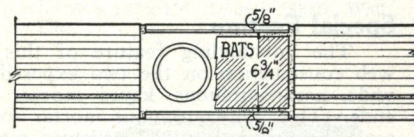
Figs. 47 to 51 inclusive show method of enclosing electric conduit and fittings, also water, vent and soil pipes within Vitritile walls. Space is obtained by use of 5/8", 1 1/2" and 1 7/8" thickness of Vitritile as may be necessary to face the wall at the conduit or piping.

**Fig. 51**

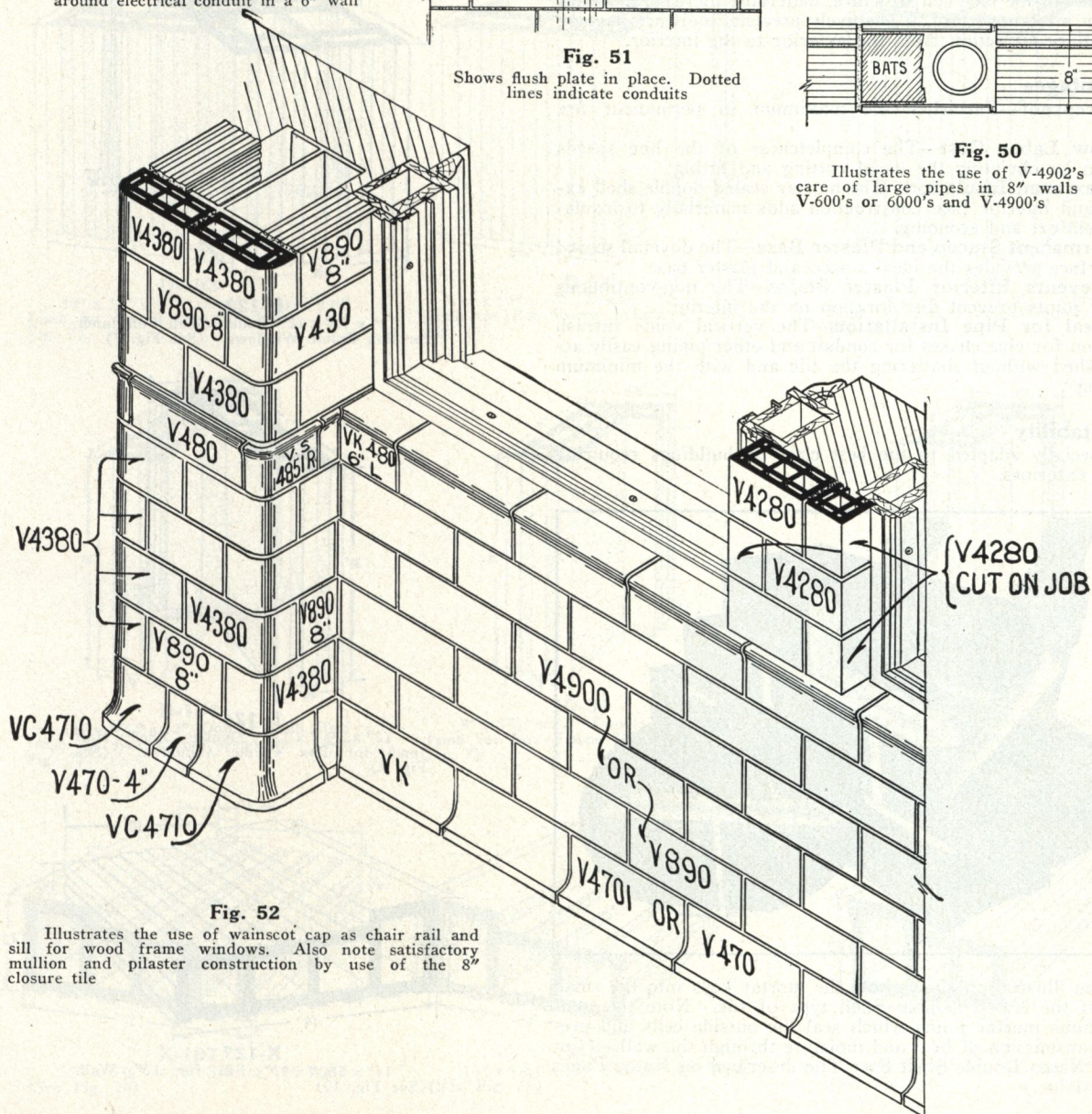
Shows flush plate in place. Dotted lines indicate conduits

**Fig. 49**

Illustrates the use of V-4900 for working around electrical conduits in 8 1/2" wall of bonded V-600's and V-4900's

**Fig. 50**

Illustrates the use of V-4902's for taking care of large pipes in 8" walls of bonded V-600's or 6000's and V-4900's

**Fig. 52**

Illustrates the use of wainscot cap as chair rail and sill for wood frame windows. Also note satisfactory mullion and pilaster construction by use of the 8" closure tile

NATCO VITRITILE DETAILS

SCALE 3/4" = 1'-0"

NATCO DOUBLE SHELL LOAD BEARING TILE

General

Natco Double Shell Load Bearing Tile is designed for vertical web load bearing walls to receive exterior stucco and interior plaster applied directly to the tile surfaces. The standard wall units have 12" x 12" dovetail scored faces and are furnished in four (4) thicknesses—6", 8", 10", and 12" to meet the various wall thickness requirements. Beside the standard wall units, complete dovetail scored complementary accessory units are furnished in each thickness for sills, jambs (for both wood and steel windows), lintels, corners, joist closures, joist bearing slabs, joist fillers, etc. to obviate cutting and fitting.

With properly staggered joints all webs are brought into vertical alignment developing maximum wall strength.

Special Feature

The outstanding feature of this tile is the double shell web construction on the two exposed faces which provides a wide, non-continuous, keyed mortar joint on both beds and ends. This non-continuous mortar joint not only permanently seals the outside face cell structure, materially increasing insulation, but most important, it positively prevents moisture passage by capillary attraction from the exterior to the interior.

Advantages

Fireproof—Furnishes the maximum in permanent fire safety.

Low Labor Cost—The completeness of the line speeds erection by obviating the usual cutting and fitting.

Maximum Insulation—The mortar sealed double shell exterior and interior face construction adds materially to insulation, comfort and economy.

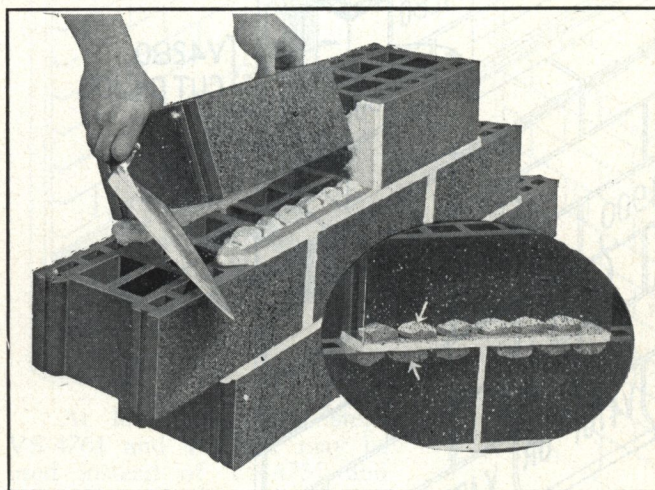
Permanent Stucco and Plaster Base—The dovetail scored tile surface provides the ideal stucco and plaster base.

Prevents Interior Plaster Stains—The non-continuous mortar joints prevent discoloration on the interior.

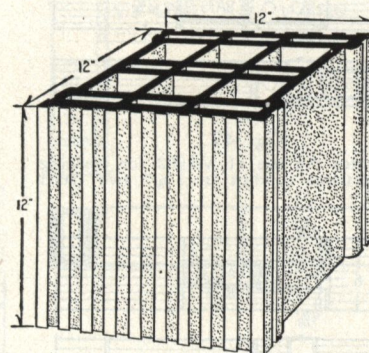
Ideal for Pipe Installation—The vertical voids furnish provision for pipe chases for conduit and other piping easily accomplished without shattering the tile and with the minimum patching.

Adaptability

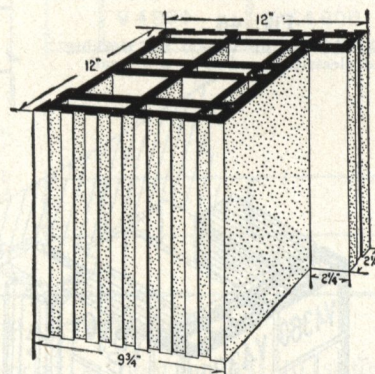
Specially adapted to the best class of buildings requiring stucco exteriors.



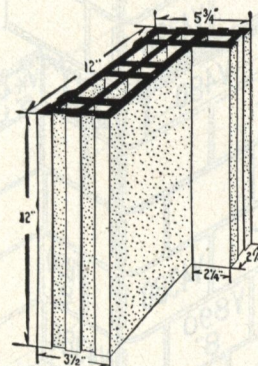
The illustration shows how the mortar keys into the small cells of the Natco Double Shell type of tile. Note the non-continuous mortar joints which seal the outside cells and prevent transmission of heat and moisture through the wall. (Cut shows Natco Double Shell Face Tile described on Natco Pages 35 to 41 inc.)



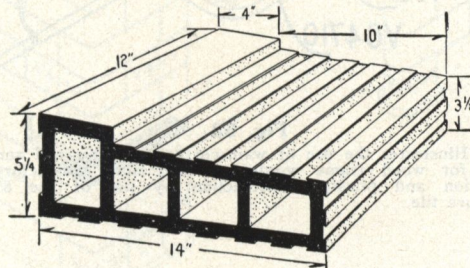
D-120
12" x 12" x 12" Double Shell Wall Tile



D-123
12" x 12" x 12" Double Shell Full Jamb
for Box Frame Windows. (See Fig. 7)

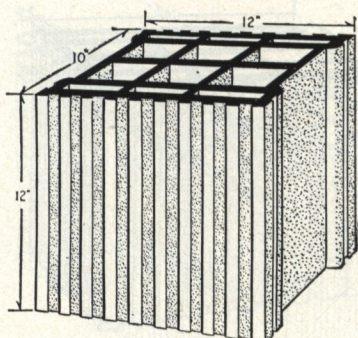


D-124
12" x 5 3/4" x 12" Double Shell Half
Jamb for Box Frame Windows. (See
Fig. 7)

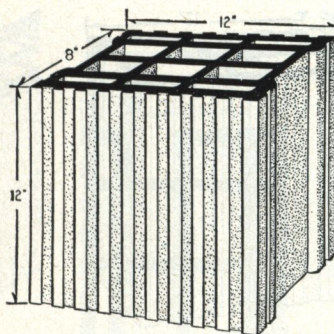


X-127
14" x 5 1/4" x 12" Sill for 12" Wall.
(See Fig. 10)

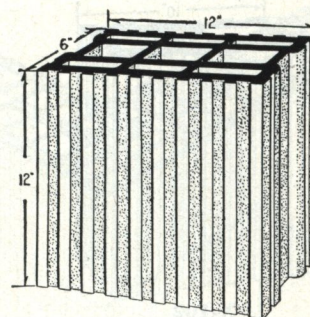
NATCO DOUBLE SHELL LOAD BEARING TILE



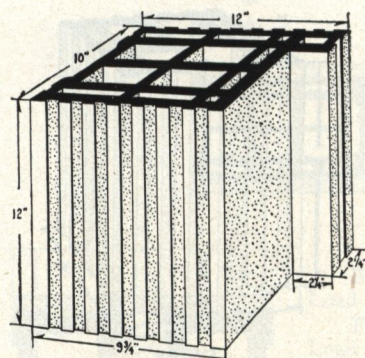
D-100
10" x 12" x 12" Double Shell Wall
Tile



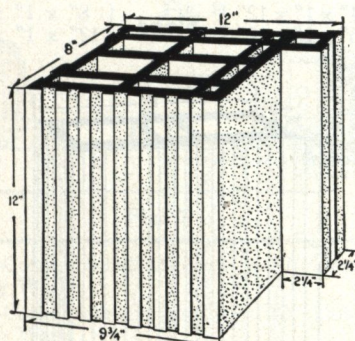
D-80
8" x 12" x 12" Double Shell Wall
Tile



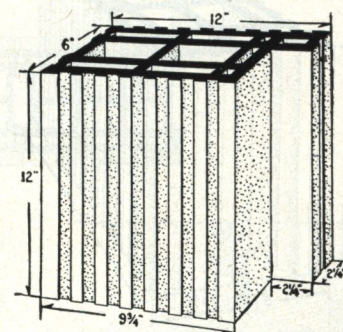
D-60
6" x 12" x 12" Double Shell Wall
Tile



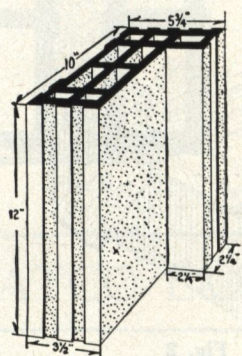
D-103
10" x 12" x 12" Double Shell Full
Jamb for Box Frame Windows. (See
Fig. 7)



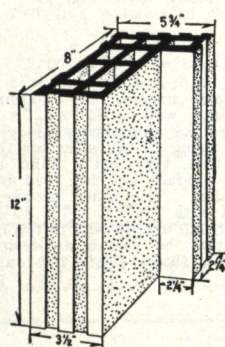
D-83
8" x 12" x 12" Double Shell Full
Jamb for Box Frame Windows. (See
Fig. 7)



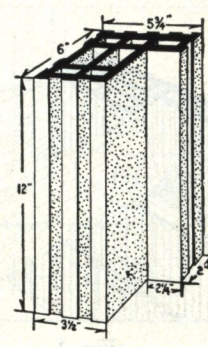
D-63
6" x 12" x 12" Double Shell Full
Jamb for Box Frame Windows. (See
Fig. 7)



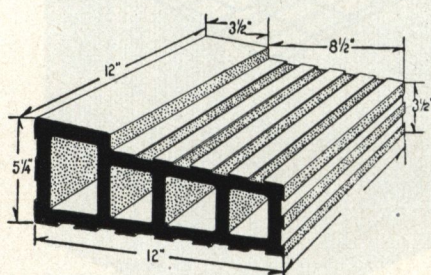
D-104
10" x 5 1/4" x 12" Double Shell Half
Jamb for Box Frame Windows. (See
Fig. 7)



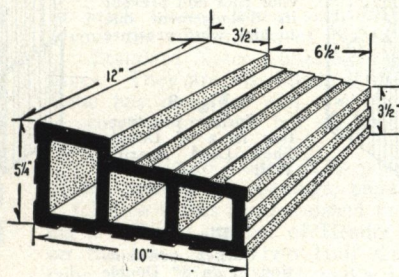
D-84
8" x 5 1/4" x 12" Double Shell Half
Jamb for Box Frame Windows. (See
Fig. 7)



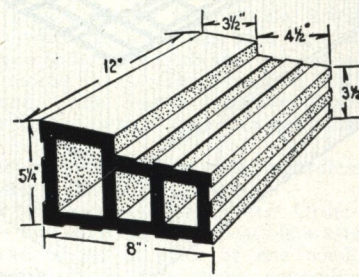
D-64
6" x 5 1/4" x 12" Double Shell Half
Jamb for Box Frame Windows. (See
Fig. 7)



X-107
12" x 5 1/4" x 12" Sill for 10" Wall.
(See Fig. 10)

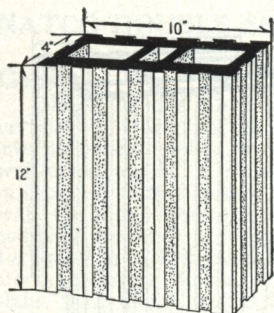


X-87
10" x 5 1/4" x 12" Sill for 8" Wall.
(See Fig. 10)

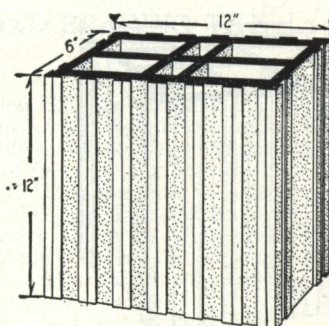


X-67
8" x 5 1/4" x 12" Sill for 6" Wall.
(See Fig. 10)

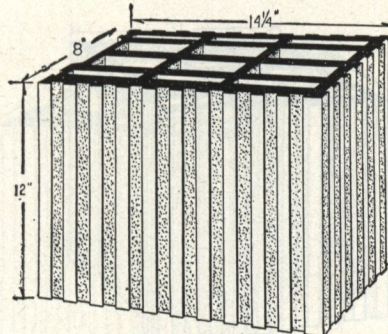
NATCO DOUBLE SHELL LOAD BEARING TILE

**X-102**

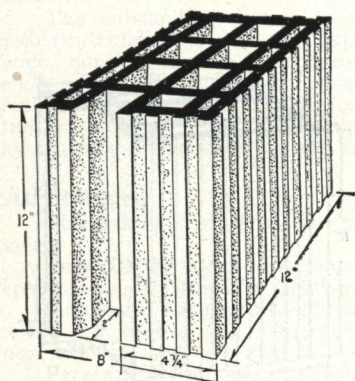
10 x 4" x 12" Corner for 10" wall. (See Fig. 5)

**X-60**

6" x 12" x 12" for 6" and 12" Walls. (See Figs. 3 and 6)

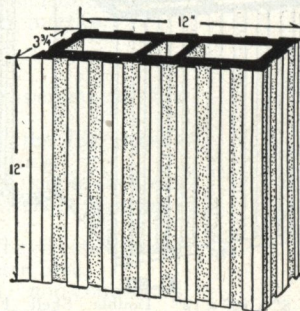
**D-82**

8" x 14 1/4" x 12" Double Shell Corner for 8" Wall. (See Fig. 4)

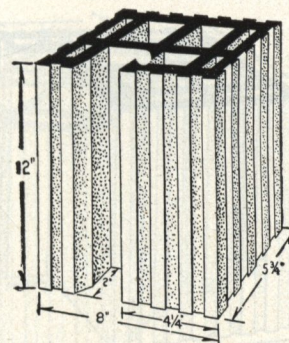
**DS-83**

8" x 12" x 12" Full Jamb or Lintel Tile for Steel Sash and Plank Frame Window and Doors. Recess in tile takes care of flange on steel sash or wood weather strip on box frame. This tile is also used as a Full Closure Tile

4" x 1" x 12" } Slabs { 8" x 1" x 12"
6" x 1" x 12" } { 12" x 1" x 12"

**X-40**

3 3/4" x 12" x 12" Joist Closure also cut 10 1/2" high for use as joist filler. (See Fig. 1)

**DS-84**

8" x 5 3/4" x 12" Half Jamb for Steel Sash and Plank Frame Windows and Doors. Recess in tile takes care of flange on steel sash or wood weather strip on box frame. This tile also used as a Half Closure Tile

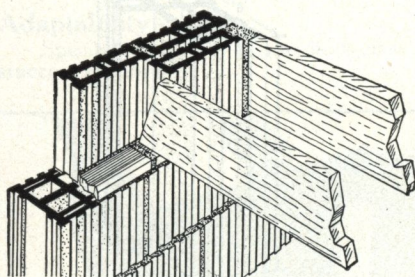
**Fig. 1**

Fig. 1
Shows method of building wood joists into wall. 3 3/4" x 12" x 12" tile are used for the exterior face of wall and by using 1" tile slabs for the joists to rest on, they get a solid and flat bearing surface and the load is evenly distributed. The space between joists is filled with 3 3/4" x 12" x 10 1/2" filler tile to make a solid wall to top of joists. Joists may be spaced as desired. Illustration shows joists 14" on centers

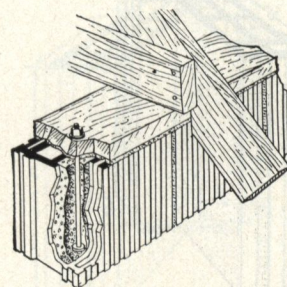
**Fig. 2**

Fig. 2
Bolting of roof plate to top of wall is necessary in any masonry wall to anchor roof and prevent its dislodgement due to high wind pressure

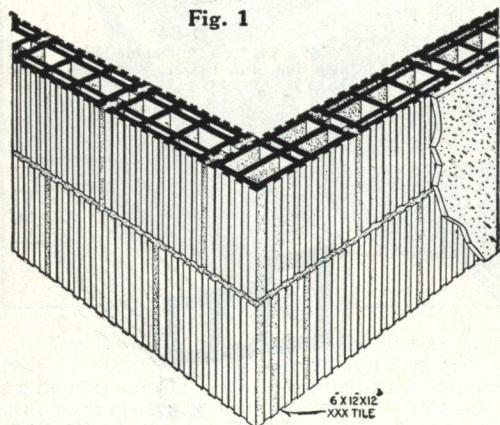
**Fig. 3**

Fig. 3
Corner construction in a 6" Double Shell Load Bearing Wall

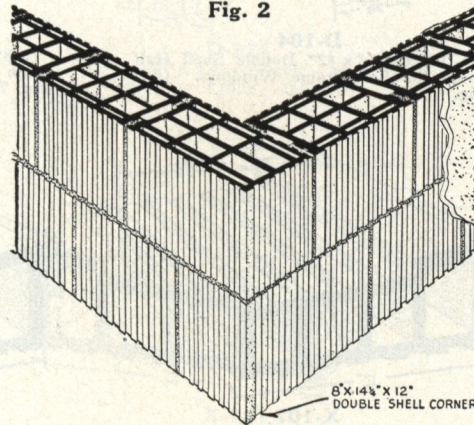
**Fig. 4**

Fig. 4
Corner construction in an 8" Double Shell Load Bearing Wall

NATCO DOUBLE SHELL LOAD BEARING TILE

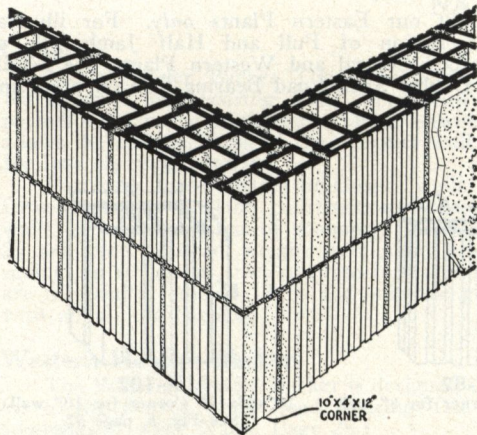


Fig. 5

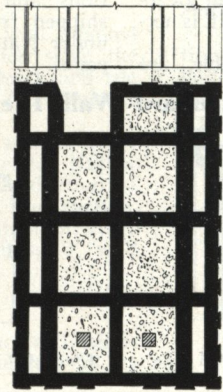


Fig. 8

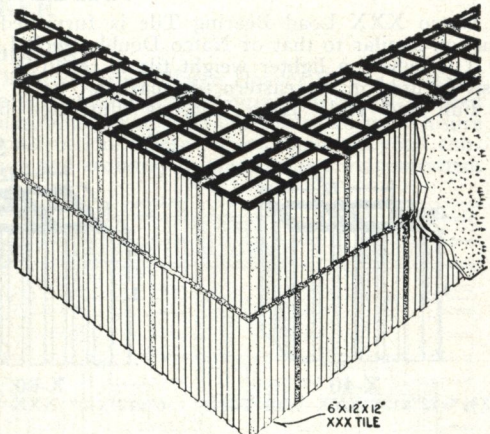


Fig. 6

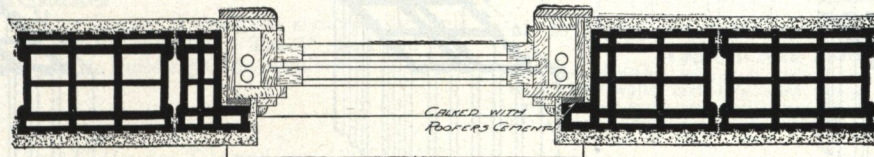


Fig. 7

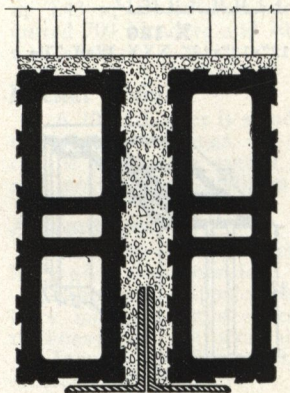


Fig. 9

Fig. 5—Corner construction in a 10" Double Shell Load Bearing Wall.

Fig. 6—Corner construction in a 12" Double Shell Load Bearing Wall.

Fig. 7—Longitudinal cross section showing use of full and half jamb tile with box frame. Recess in tile provides space for sash weight box.

Fig. 8—Reinforced lintel made by placing steel rods in bottom cells of steel sash full jamb and filling cells of tile with concrete. For use with steel sash, reverse tile and construct as above.

Fig. 9—Lintel construction over wide openings, using 3 3/4" x 12" x 12" tile for wall facings and steel angles for carrying load.

Fig. 10—Section at window sill showing fitting of frame to sill and waterproofing between frame and sill with roofers' cement.

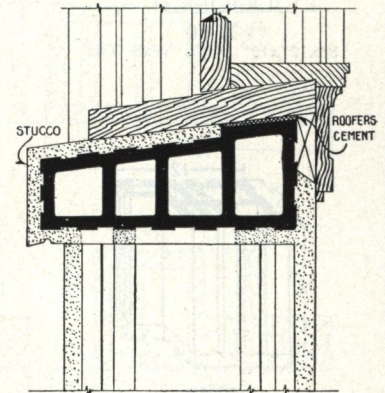
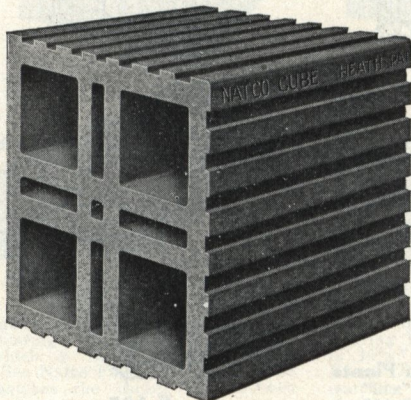


Fig. 10

NATCO DOUBLE SHELL LOAD BEARING TILE



NATCO HEATH CUBES

Natco Heath Cubes are standardized hollow structural clay tile units, cubical in shape, dimensioned according to the established measurement of brick work. Their size, 7 3/4" x 7 3/4" x 7 3/4", exactly that of six brick, permit the substitution of Natco Cubes wherever brick has been figured.

Standard Natco Cubes have two opposite faces smooth and two scored faces. They are also made with four scored faces. The Standard Half Cube has one face and one end smooth. The Standard Header Cube is scored four sides but on special order the inside face can be made smooth.

With Natco Cubes, it is possible to build an all-tile wall, regardless of the number of openings, piers, pilasters, chases or corners.

Natco Cubes are furnished in either whole or fractional units. Ordering a sufficient number of Header Cubes will save time and possible waste on the job. Since two Half Cubes can be set in place of one whole cube, it is advisable to make your estimate on this shape generally. Quarter Cubes can be split from Half Cubes as needed. In any case, the whole cube is always divisible into any shape on the job.

NATCO HEATH CUBES

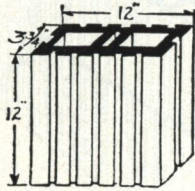
NATCO XXX LOAD BEARING TILE

Natco XXX Load Bearing Tile is furnished for construction similar to that of Natco Double Shell Load Bearing Tile, where a lighter weight tile is required. It is extensively used in the eastern tile market.

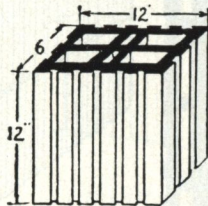
Full and Half Jamb Tile, as illustrated below, are

manufactured at our Eastern Plants *only*. For illustrations and description of Full and Half Jamb Tile as shipped from our Central and Western Plants, see details under Natco Double Shell Load Bearing Tile on preceding pages.

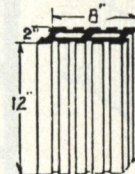
Standard Wall Tile



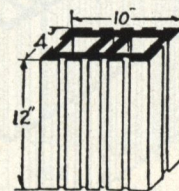
X-40
3 3/4"x12"x12" XXX Wall Tile



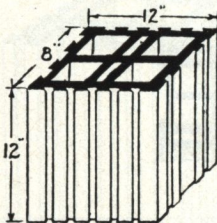
X-60
6"x12"x12" XXX Wall Tile



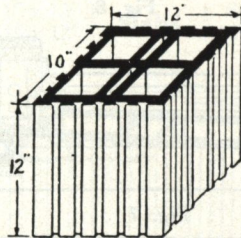
X-82
8"x2"x12" Corner for 8" wall



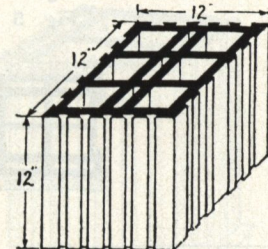
X-102
10"x4"x12" Corner for 10" wall.
See Fig. 5, page 27



X-80
8"x12"x12" XXX Wall Tile

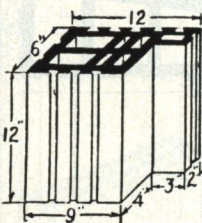


X-100
10"x12"x12" XXX Wall Tile

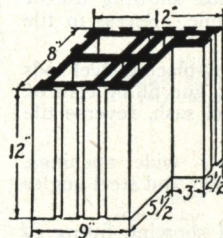


X-120
12"x12"x12" XXX Wall Tile

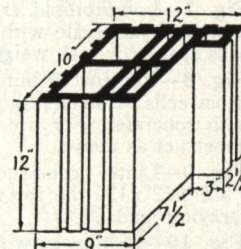
Full and Half Jamb Tile



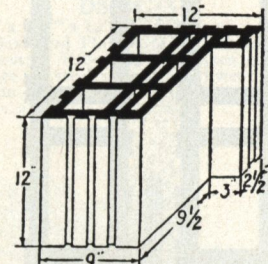
X-63
6"x12"x12" XXX Full Jamb for Box Frame Windows



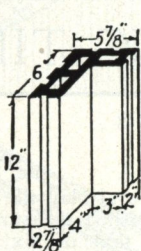
X-83
8"x12"x12" XXX Full Jamb for Box Frame Windows



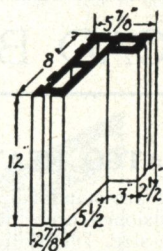
X-103
10"x12"x12" XXX Full Jamb for Box Frame Windows



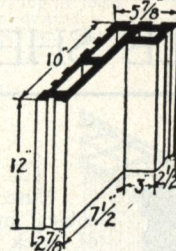
X-123
12"x12"x12" XXX Full Jamb for Box Frame Windows



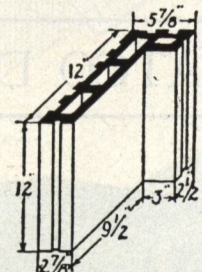
X-64
6"x5 7/8"x12" XXX Half Jamb for Box Frame Windows



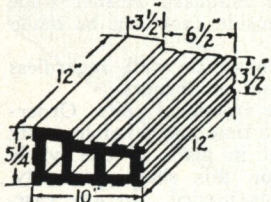
X-84
8"x5 7/8"x12" XXX Half Jamb for Box Frame Windows



X-104
10"x5 7/8"x12" XXX Half Jamb for Box Frame Windows



X-124
12"x5 7/8"x12" XXX Half Jamb for Box Frame Windows



X-87
10"x5 1/4"x12" Sill for 8" Walls

Sills

X-127
14"x5 1/4"x12" Sill for 12" Walls.
See page 24

X-67
8"x5 1/4"x12" Sill for 6" Walls
See page 25

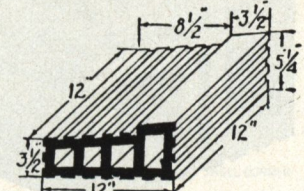
Slabs

Eastern Plants

6"x1"x12"
8"x1"x10"
8"x1"x12"

Central and Western Plants

4"x1"x12"
6"x1"x12"
8"x1"x12"
10"x1"x12"
12"x1"x12"



X-107
12"x5 1/4"x12" Sill for 10" Wall

NATCO XXX LOAD BEARING TILE

NATCO HEADER BACKER

General

Natco Header Backer Tile is particularly well adapted for exterior load bearing walls faced with brick since the perfect bond every sixth brick course between brick and tile allows the full thickness of the masonry wall to be calculated for load carrying capacity.

For brick faced curtain or closure walls in steel or reinforced concrete skeleton construction, Natco Header Backer walls are ideal in point of economy. Due to a reduction of 25 per cent in dead weight over solid brick construction, savings in structural steel run into tons and foundation costs are materially reduced. It is the only tile giving a 10" wall with an all tile backing.

Western Header Backer

The Western Header Backer is designed structurally similar to the Double Shell Load Bearing Tile and has all its advantages. (See Natco Page 28.)

Eastern Header Backer

The Eastern Header Backer is designed structurally similar to the Triple X Load Bearing Tile. The 1" shell and web thickness fulfill New York Building Code requirements. (See Natco Page 32.)

Displacement

One (1) 8" x 5" x 12" Header Tile and one (1) 8" x 12" x 10½" Backer Tile including ½" bed and vertical joints lay up 1.43 sq. ft. of wall surface; or conversely, there are required 700 Headers and 700 Backers to lay up 1000 sq. ft. of wall surface.

Backer Height

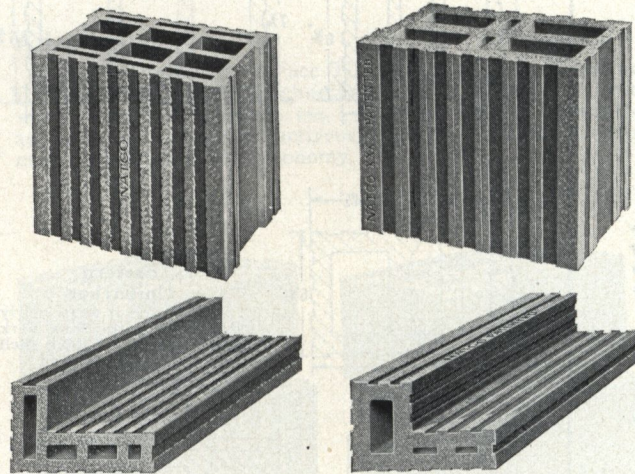
A 10½" backer is standard and fulfills requirements in the majority of buildings. If necessary, however, the backer tile can be made of a special height to meet any ordinary brick and mortar joint condition.

Advantages

Strength—The perfect bond every sixth course of face brick gives maximum load bearing strength for wall thickness.

Lightness—Approximately 25 per cent lighter than solid brick masonry walls of equal thickness. The 10" and 14" thicknesses are not obtainable in solid brick masonry.

Insulation—The cellular tile structure promotes insulation comfort and economy.



Western Header Backer

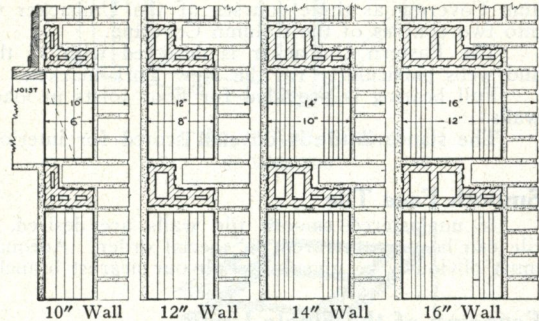
Note that the backer tile is similar to Natco Double Shell Load Bearing Tile except in height which is 10½" instead of 12". (See Natco Page 28.) Header tile matches the backer tile in web construction

Eastern Header Backer

Note that the backer tile is similar to Natco Triple X Load Bearing Tile except in height which is 10½" instead of 12". (See Natco Page 32.) Header tile matches the backer tile in web construction

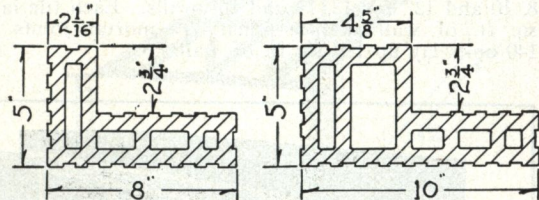
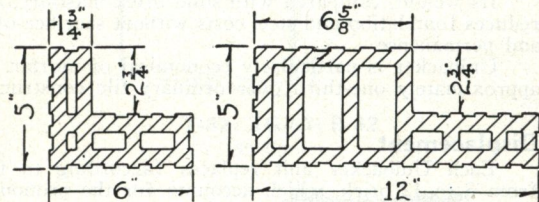
Adaptability

The strong, light Natco Header Backer construction is particularly adapted to use in all brick faced buildings, whether of load bearing or curtain closure wall construction, where the maximum in good construction and economy in labor costs are appreciated.



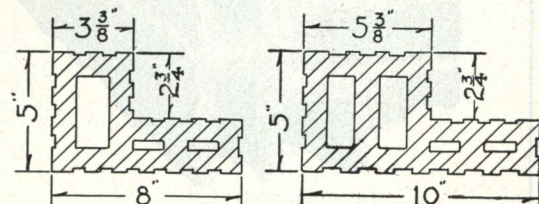
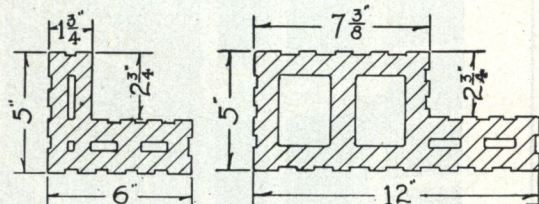
Typical Wall Sections

The standard backer is 10½" high. While these sections show walls, including brick facing, 10, 12, 14 and 16" thick walls may easily be obtained by using additional tile



Western Header

The web design matches that of the double shell Western backer tile



Eastern Header

The web design matches that of the Eastern backer tile with 1" web thickness

NATCO HEADER BACKER

NATCO UNIBACKER

General

Natco Unibacker is a load bearing unit used in brick faced load bearing or curtain closure walls. It provides a mechanical bond every sixth brick course of such strength that full bearing value is allowed on the full masonry wall thickness.

Natco Unibacker can be bonded satisfactorily with Column Covering as three courses of the Unibacker will bond into two courses of the Column Covering.

The Eastern Unibacker is designed with 1" thick shell and webs particularly for the New York market.

Full bearing is provided for floor joists in load bearing walls.

The standard tile is dovetail scored for interior plaster.

Smooth Face Tile

If unplastered smooth tile walls are desired, unscored tile can be manufactured on special order. Adequate notice must obviously be given through our nearest branch office.

Economy of the Single Unit

Unibacker is made in a single tile shape and size which permits great speed of erection and consequent labor economies. This is particularly apparent in long curtain walls without openings.

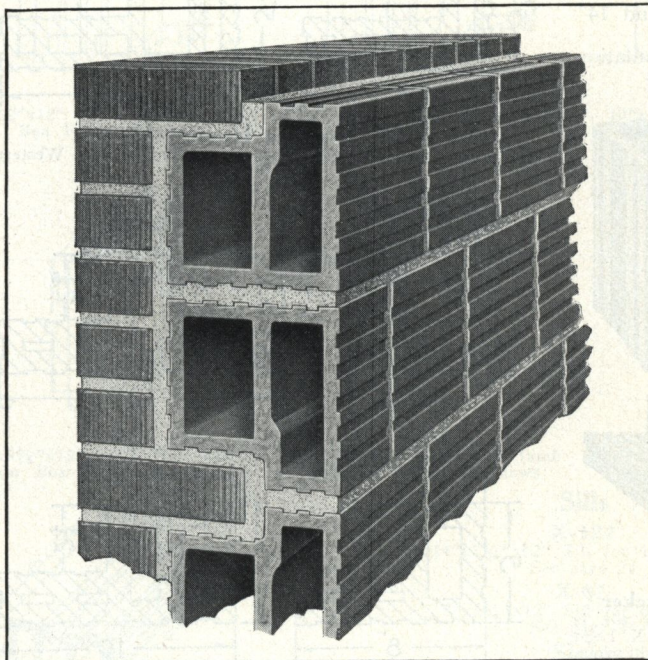
Its weight, compared with solid brick masonry, materially reduces foundation and steel costs without sacrifice of strength and permanence.

Unibacker is particularly economical of mortar. It saves approximately one-third over ordinary tile construction.

Displacement

Each Unibacker unit replaces (according to thickness) from 8 to 12 brick, which accounts for the pronounced savings in erection costs and the greater erection speed.

The inner face is $12" \times 7\frac{3}{4}"$. Standard thicknesses are 8, 10 and 12" for 12, 14 and 16" walls. Each tile lays up .715 sq. ft. of wall surface when $\frac{1}{2}"$ mortar joints are used. 140 units lay up 100 sq. ft. of wall.

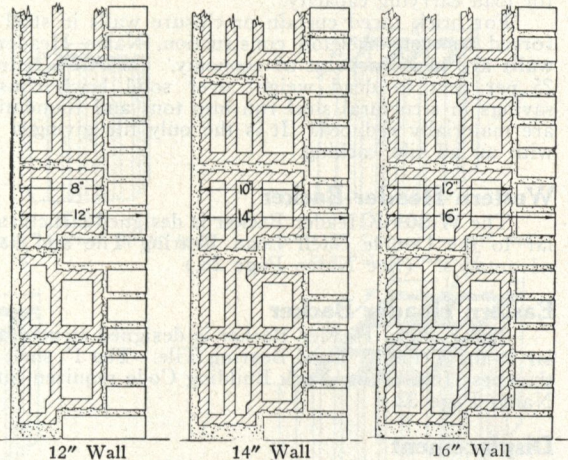


Natco Unibacker Construction (Eastern Type)

Note the strong, effective masonry bond between the Unibacker tile and brick facing

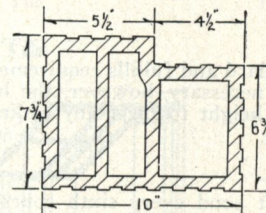
Adaptability

A strong, light construction with speed and labor economies adapting it admirably to use in all types of brick faced buildings of either load bearing or skeleton curtain wall construction.



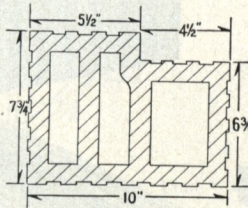
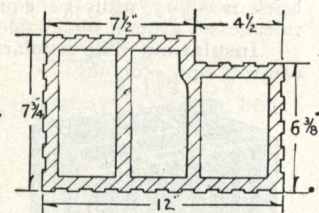
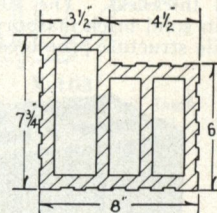
Typical Wall Sections

While these sections show walls including brick facing, 12, 14 and 16" only, thicker walls may easily be obtained by using additional tile



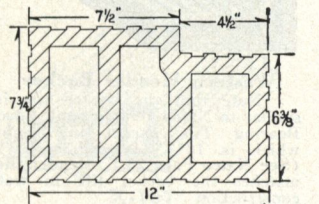
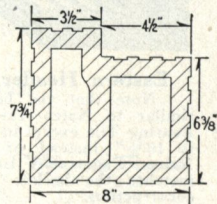
Western Unibacker

Due to the type of clay used the thinner shell and web construction adequately fulfills all load bearing requirements



Eastern Unibacker

This tile is particularly designed for the New York market where 1" thick shell and webs are required



NATCO UNIBACKER

NATCO DOUBLE SHELL FACE TILE

General

Natco Double Shell Face Tile (Load Bearing) provides a most economical form of masonry construction.

The double shell feature adds to the comfort and strength of the completed structure. A multiple blanket of isolated air cells is located on both the exterior and interior face of the tile forming a barrier to heat transmission. All mortar joints are non-continuous, thus moisture cannot be drawn through by capillary attraction. The voids in the double shell key with the mortar adding strength and stability to the wall. (See also Natco Page 28.)

Each tile laid forms a section of an insulated moisture resisting wall, with an attractively finished exterior face. Up-keep is negligible, as the tile does not discolor, disintegrate or weather—obviously painting or similar maintenance is eliminated.

Each unit is equivalent to six brick, easily and quickly laid, effecting considerable labor and mortar savings.

Made with a 5" x 12" face for 8" walls, complete with all accessory shapes for sills, jambs, lintels, etc. Also in 10 3/8" x 12" face for 8" walls, for ashlar bond. (See Natco Page 41 for architectural detail.)

Unglazed Tex-Tile (Designated by T)

Natco Unglazed Tex-Tile has a texture face resembling a high quality tapestry brick. To meet individual preferences, it is furnished in three (3) color combinations. These are termed Shade Ranges E-1, E-2 and E-3. In Shade Range E-1, the browns predominate. In Shade Range E-3 the reds predominate. In Shade Range E-2 a combination (full range) of Shade Ranges E-1 and E-3 is obtained which is extremely beautiful. The inside face is scored for plaster. (A color chart showing these shade ranges will be sent on request.)

Glazed Tex-Tile (Designated by TG)

Natco Glazed Tex-Tile has the same texture finish as the unglazed and is furnished in dark brownish shades. The inside face is scored for plaster.

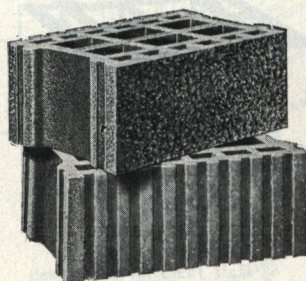
Glazed Combed Face Tile (Designated by B)

Natco Glazed Combed Face Tile has an exterior scratched or combed face and a glazed, smooth, sanitary, easily cleaned interior surface. It is furnished for walls 8" thick.

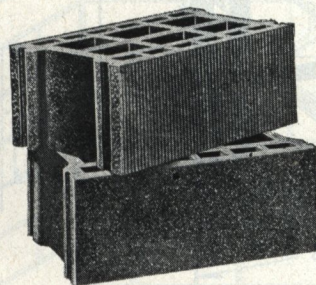
Natco Unglazed Combed Face Tile is furnished with unglazed, combed exterior and smooth interior faces.

Adaptability

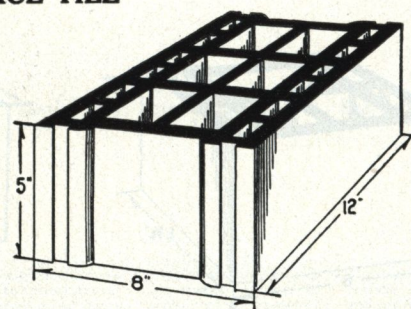
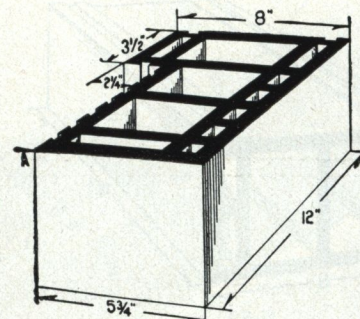
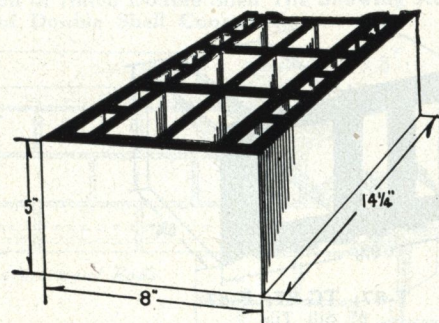
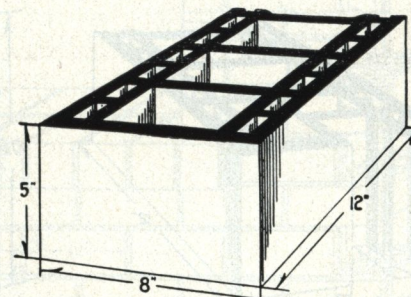
Natco Double Shell Face Tile is extensively and successfully used for residences, churches, schools, garages, factories, warehouses, gas stations, etc. It is the logical choice for any structure where attractiveness, permanence and comfort must be combined with economy.

**Natco Tex-Tile**

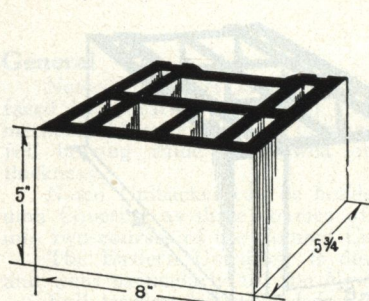
Furnished with outside face either unglazed or glazed with the inside face scored for plaster

**Natco Combed Face Tile**

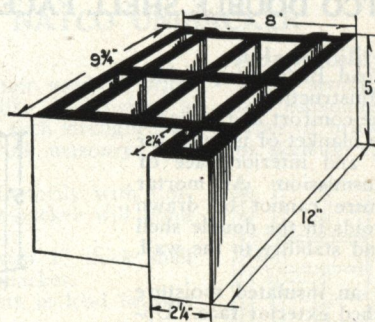
Furnished with outside face glazed and the inside face smooth glazed for exposed interior finish

**T-80; TG-80; B-80**
8" Wall Tile**T-82; TG-82; B-82**
8" Corner**T-88; TG-88; B-88**
8" Inside Corner**T-85; TG-85; B-85**
8" Closure**T-41; TG-41; B-41**
1" x 4" x 12" Joist Bearing Slab
See Fig. 5

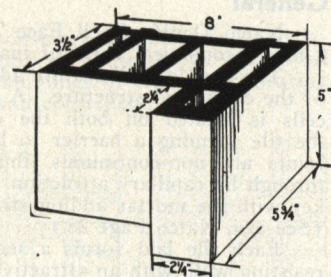
NATCO DOUBLE SHELL FACE TILE



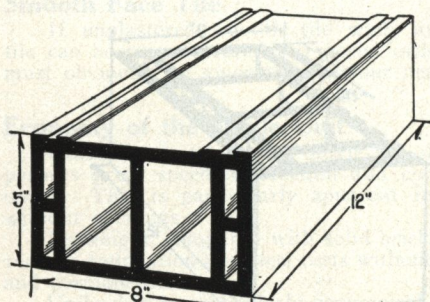
T-86; TG-86; B-86
8" Half Closure



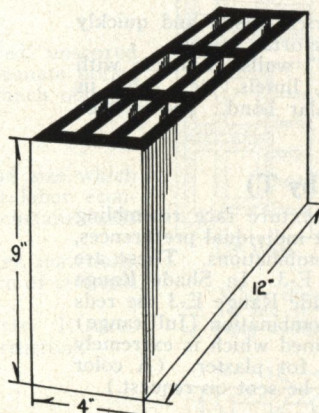
T-83; TG-83; B-83
8" Full Jamb



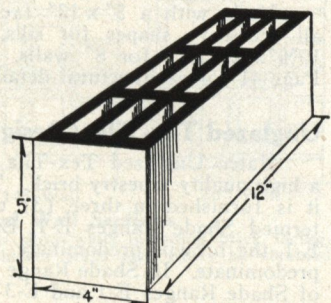
T-84; TG-84; B-84
8" Half Jamb



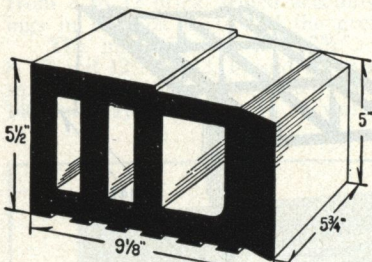
B-89
8" Straight Lintel
Furnished in Combed Face only. (See T-89,
TG-89, Page 33)



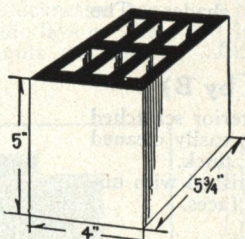
T-49; TG-49; B-49
4" Joist Filler



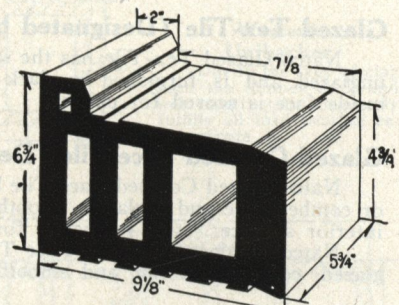
T-40; TG-40; B-40
4" Joist Closure



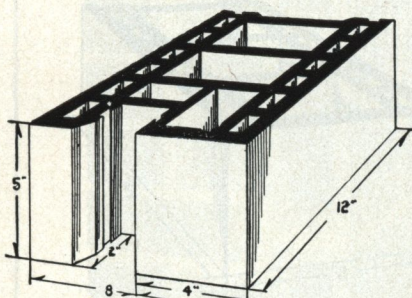
T-87; TG-87; B-87
8" Sill Tile



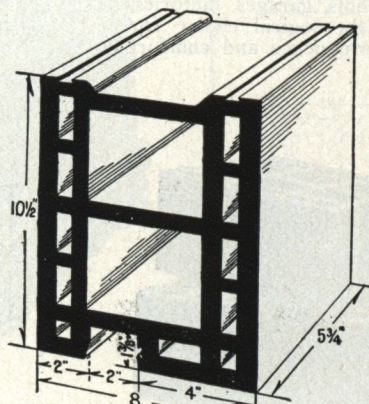
T-46; TG-46; B-46
Pilaster Tile



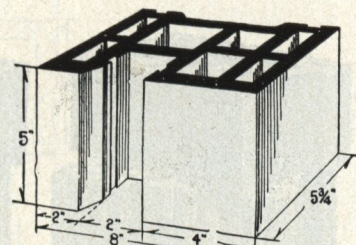
TS-87; TGS-87; BS-87
8" Sill for Steel Sash



TS-83; TGS-83; BS-83
8" Full Jamb for Steel Sash
and for Plank Frame Windows
and Doors

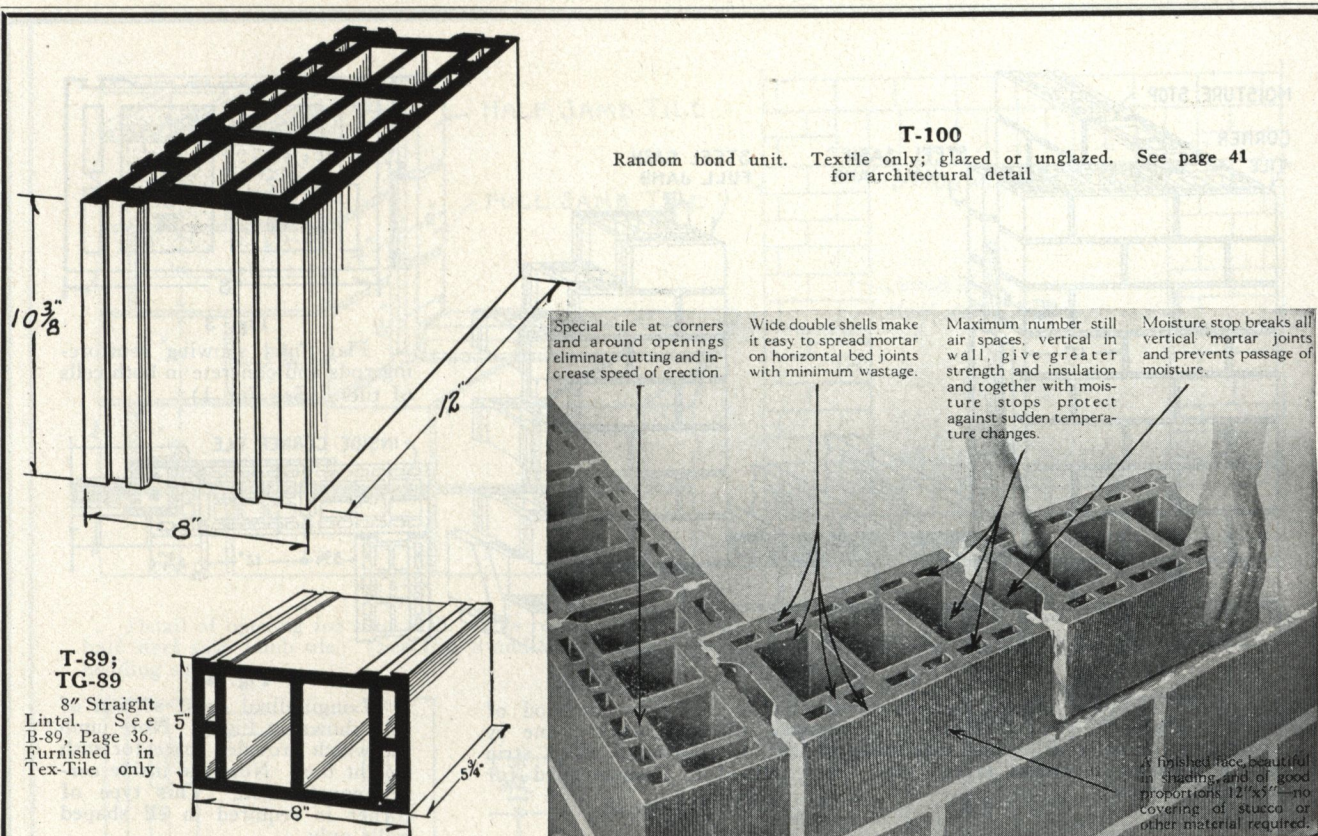


TS-89; TGS-89; BS-89;
8" Soldier Lintel for Steel
Sash. (Note: This lintel is also
used extensively with wood frame
windows and for soldier courses)



TS-84; TGS-84; BS-84
8" Half Jamb for Steel Sash
and for Plank Frame Windows
and Doors

NATCO DOUBLE SHELL FACE TILE



View of Corner Section of Natco Double Shell Tile Showing Advantages of Double Shell Construction

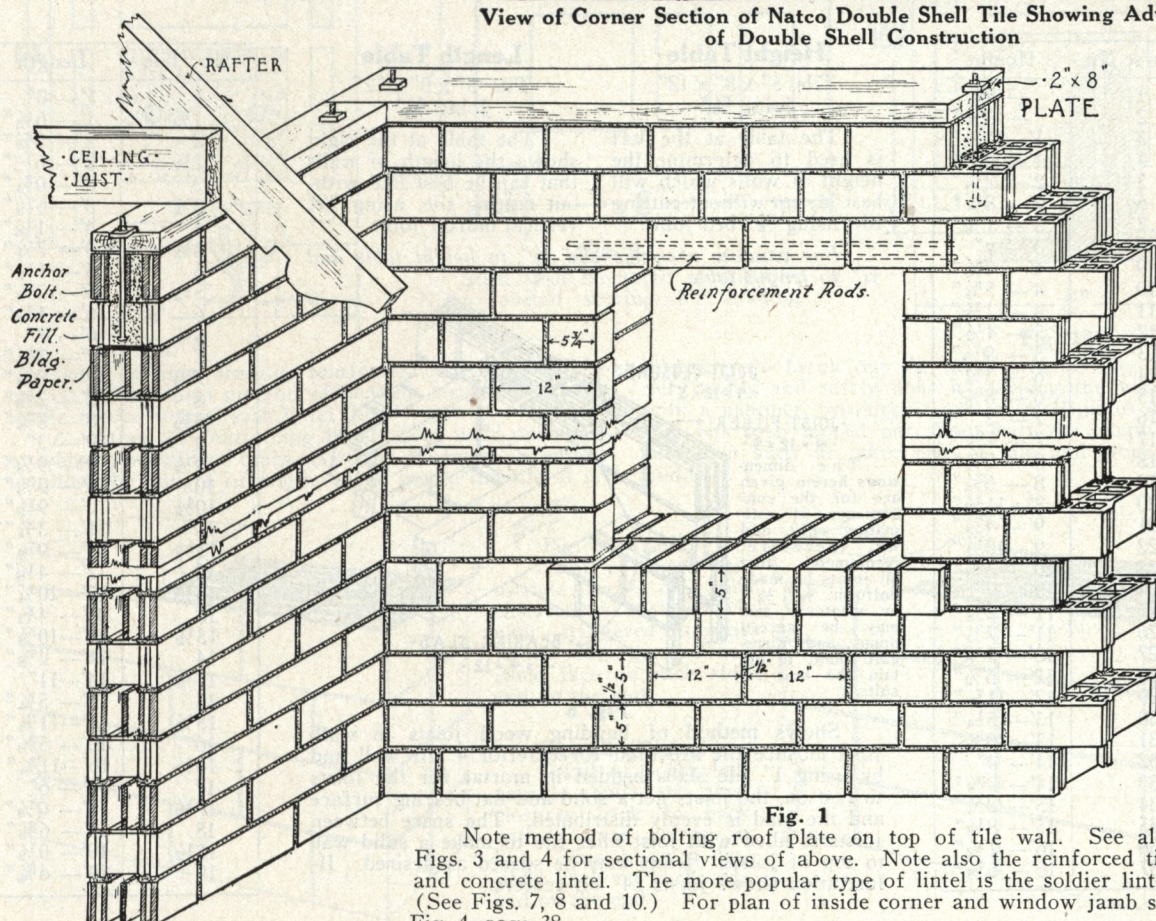


Fig. 1

Note method of bolting roof plate on top of tile wall. See also Figs. 3 and 4 for sectional views of above. Note also the reinforced tile and concrete lintel. The more popular type of lintel is the soldier lintel. (See Figs. 7, 8 and 10.) For plan of inside corner and window jamb see Fig. 4, page 38.

NATCO DOUBLE SHELL FACE TILE

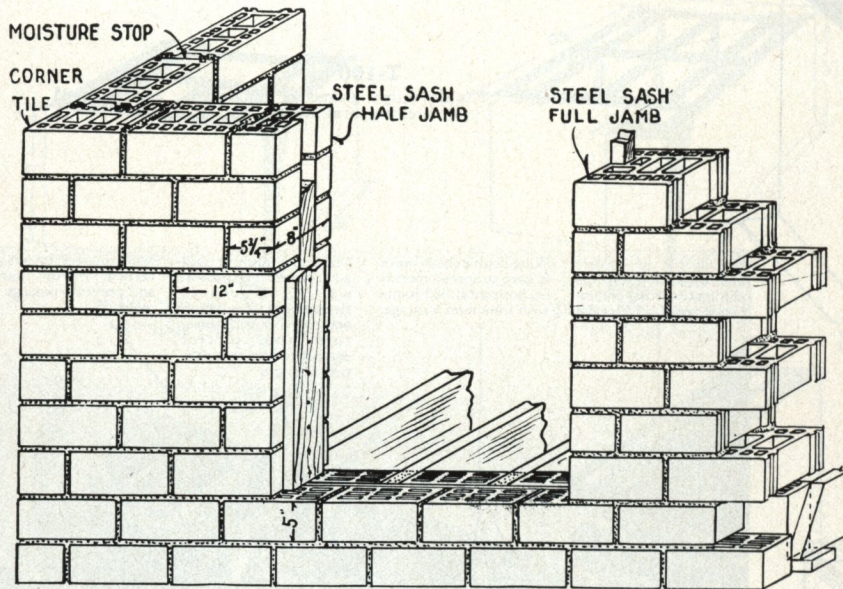


Fig. 2

Shows ordinary outside corner construction. Also shows method of making an absolutely weatherproof joint between tile and plank frame by using a strip of wood which has been nailed to the frame. This strip should fit into the recess in the tile. This method is recommended for all plank frames

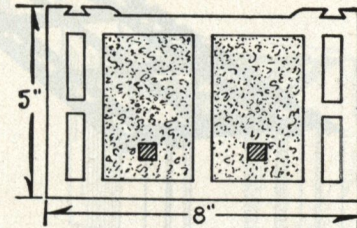


Fig. 3

Flat lintel showing reinforcing rods and concrete in both cells of tile. (See Fig. 1)

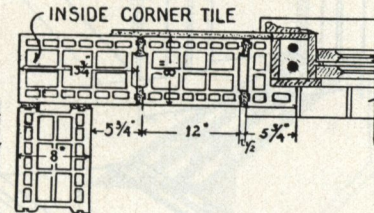


Fig. 4

Longitudinal cross section of wall shown in Fig. 1. Note jamb tile which provides space for sash weight box. Note the inside corner construction. This type of corner is required in ell shaped walls only

Course No.	Height
1	— 5 $\frac{3}{8}$ "
2	— 10 $\frac{1}{4}$ "
3	1'— 4 $\frac{1}{8}$ "
4	1'— 9 $\frac{1}{4}$ "
5	2'— 2 $\frac{7}{8}$ "
6	2'— 8 $\frac{1}{4}$ "
7	3'— 1 $\frac{5}{8}$ "
8	3'— 7"
9	4'— 0 $\frac{3}{4}$ "
10	4'— 5 $\frac{3}{4}$ "
11	4'— 11 $\frac{1}{8}$ "
12	5'— 4 $\frac{1}{2}$ "
13	5'— 9 $\frac{7}{8}$ "
14	6'— 3 $\frac{1}{4}$ "
15	6'— 8 $\frac{3}{4}$ "
16	7'— 2"
17	7'— 7 $\frac{3}{8}$ "
18	8'— 0 $\frac{3}{4}$ "
19	8'— 6 $\frac{1}{8}$ "
20	8'— 11 $\frac{1}{2}$ "
21	9'— 4 $\frac{7}{8}$ "
22	9'— 10 $\frac{1}{4}$ "
23	10'— 3 $\frac{3}{8}$ "
24	10'— 9"
25	11'— 2 $\frac{3}{8}$ "
26	11'— 7 $\frac{3}{4}$ "
27	12'— 1 $\frac{1}{8}$ "
28	12'— 6 $\frac{1}{2}$ "
29	12'— 11 $\frac{1}{8}$ "
30	13'— 5 $\frac{1}{4}$ "
31	13'— 10 $\frac{5}{8}$ "
32	14'— 4"
33	14'— 9 $\frac{3}{8}$ "
34	15'— 2 $\frac{3}{4}$ "
35	15'— 8 $\frac{3}{8}$ "
36	16'— 1 $\frac{1}{2}$ "
37	16'— 6 $\frac{3}{4}$ "

Height Table

Tile 5" x 8" x 12"
Joint $\frac{3}{8}$ "

The table at the left is used to determine the height of walls which will best lay up without cutting tile, using $\frac{3}{8}$ " bed joint.

For window openings add $\frac{3}{8}$ " to height table and $\frac{3}{4}$ " to length table.

Length Table

Tile 5" x 8" x 12"
Joint $\frac{3}{8}$ "

The table at the right shows the length of walls that can be best laid without cutting tile, using $\frac{3}{8}$ " vertical mortar joint.

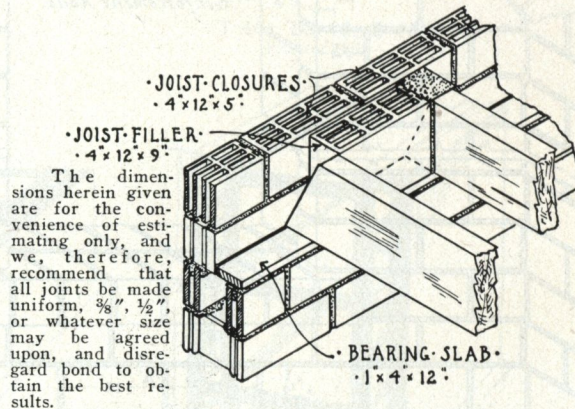


Fig. 5

Shows method of building wood joists in wall. Joist closure tile are used for exterior 4" of wall and by using 1" tile slabs bedded in mortar for the joists to rest on, the joists get a solid and flat bearing surface and the load is evenly distributed. The space between joists is filled with joist filler tile to make a solid wall to top of joists. Joists may be spaced as desired. Illustration shows joists 14" on centers.

No. Tile	Length
1	1'— 0"
1 $\frac{1}{2}$	1'— 6 $\frac{1}{8}$ "
2	2'— 0 $\frac{3}{8}$ "
2 $\frac{1}{2}$	2'— 6 $\frac{1}{2}$ "
3	3'— 0 $\frac{3}{4}$ "
3 $\frac{1}{2}$	3'— 6 $\frac{1}{8}$ "
4	4'— 1 $\frac{1}{8}$ "
4 $\frac{1}{2}$	4'— 7 $\frac{1}{4}$ "
5	5'— 1 $\frac{1}{2}$ "
5 $\frac{1}{2}$	5'— 7 $\frac{3}{8}$ "
6	6'— 1 $\frac{7}{8}$ "
6 $\frac{1}{2}$	6'— 8"
7	7'— 2 $\frac{1}{4}$ "
7 $\frac{1}{2}$	7'— 8 $\frac{3}{8}$ "
8	8'— 2 $\frac{5}{8}$ "
8 $\frac{1}{2}$	8'— 8 $\frac{3}{4}$ "
9	9'— 3"
9 $\frac{1}{2}$	9'— 9 $\frac{1}{8}$ "
10	10'— 3 $\frac{3}{8}$ "
10 $\frac{1}{2}$	10'— 9 $\frac{1}{2}$ "
11	11'— 3 $\frac{3}{4}$ "
11 $\frac{1}{2}$	11'— 9 $\frac{7}{8}$ "
12	12'— 4 $\frac{1}{8}$ "
12 $\frac{1}{2}$	12'— 10 $\frac{1}{4}$ "
13	13'— 4 $\frac{1}{2}$ "
13 $\frac{1}{2}$	13'— 10 $\frac{5}{8}$ "
14	14'— 4 $\frac{7}{8}$ "
14 $\frac{1}{2}$	14'— 11"
15	15'— 5 $\frac{1}{4}$ "
15 $\frac{1}{2}$	15'— 11 $\frac{3}{8}$ "
16	16'— 5 $\frac{5}{8}$ "
16 $\frac{1}{2}$	16'— 11 $\frac{3}{4}$ "
17	17'— 6"
17 $\frac{1}{2}$	18'— 0 $\frac{1}{8}$ "
18	18'— 6 $\frac{3}{8}$ "
18 $\frac{1}{2}$	19'— 0 $\frac{1}{2}$ "
19	19'— 6 $\frac{3}{4}$ "

NATCO DOUBLE SHELL FACE TILE

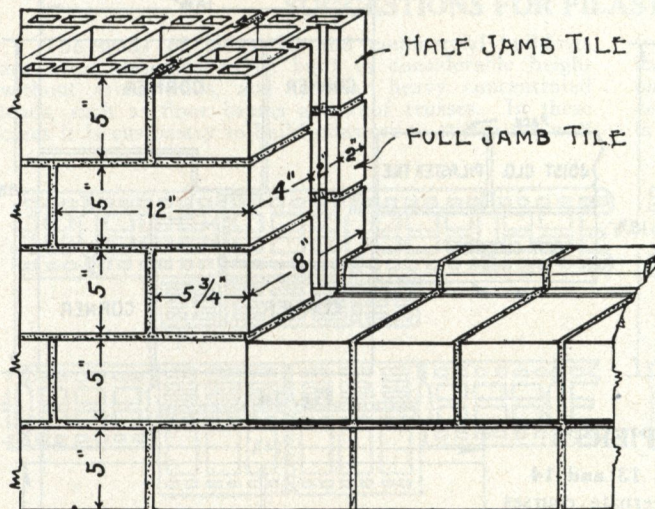


Fig. 6

Detail of opening for steel sash. Note recess in full and half steel sash jamb tile. (See Fig. 8 and 9 for method of bedding sash)

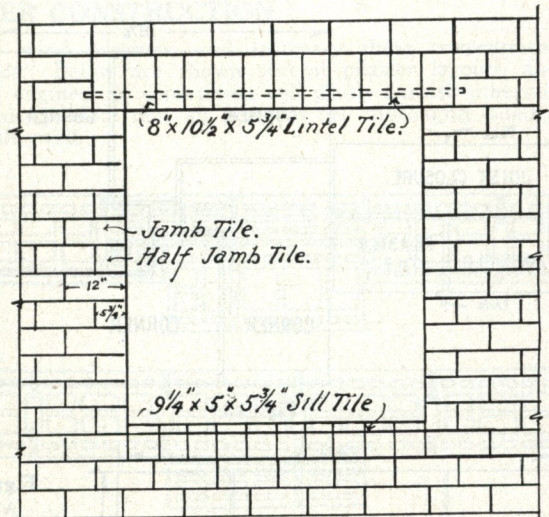


Fig. 7

Window opening showing soldier lintel. Can also be reinforced with angle iron as shown in Fig. 10

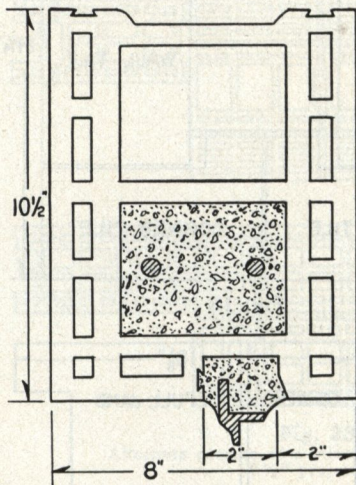


Fig. 8

Detail of lintel showing reinforced concrete beam in cell of tile and also method of bedding steel sash frame in the recess in steel sash lintel tile.

A method of reinforcing lintels over wide openings or where a heavy load bears above the openings. In order to allow the flanges of angles to go inside the tile, it is

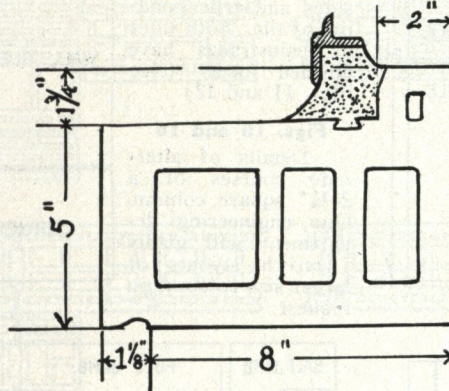


Fig. 9

Steel sash mortared to sill tile. Note dovetail scoring for holding mortar

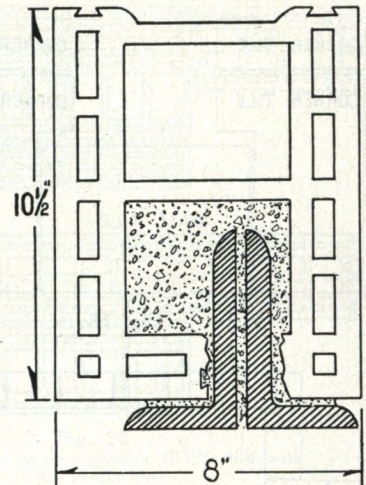


Fig. 10

necessary to break out the small web of tile. This is very easily and safely done by tapping the web lightly with a hammer, breaking it out in small pieces until the web has been tapped out about half the length of the tile—then start at other end of tile and work to the middle

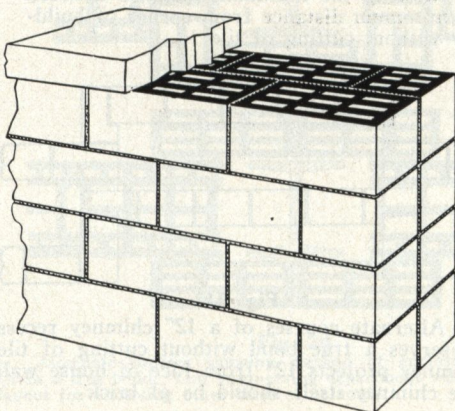


Fig. 11 (Left)

Detail of porch balustrade built of joist closures laid back to back with staggered mortar joints. This gives a finished face on each side and on the end

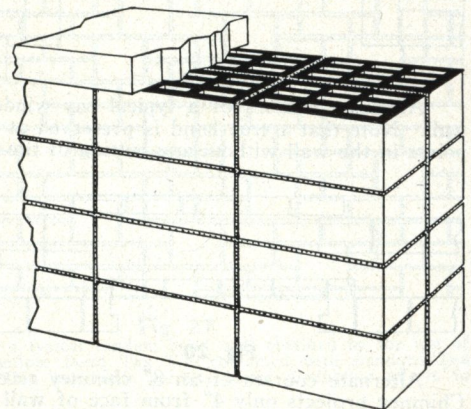


Fig. 12 (Right)

Detail of porch balustrade built of joist closures back to back with mortar joints in line. This gives a finished face on each side and on the end

NATCO DOUBLE SHELL FACE TILE

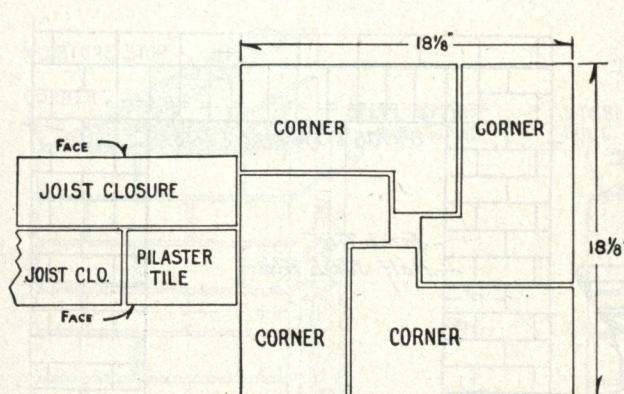


Fig. 13

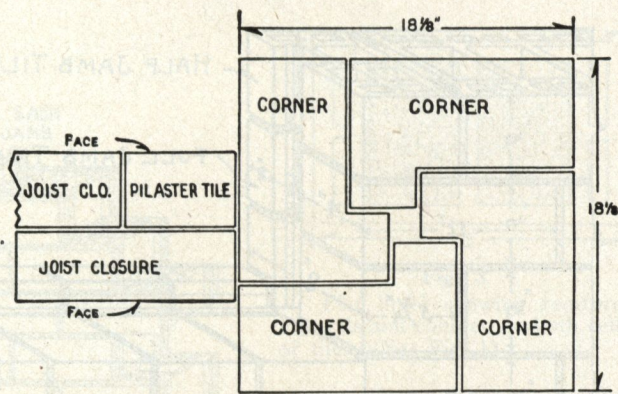


Fig. 14

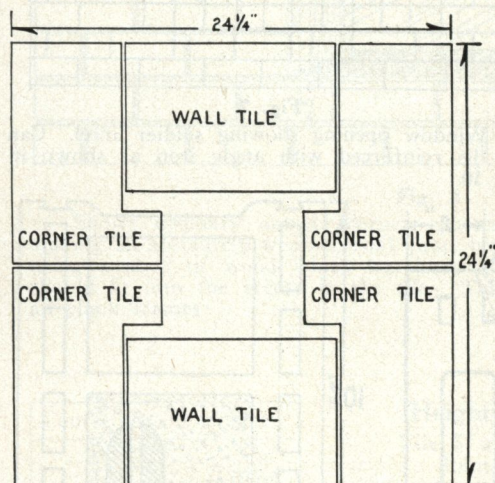


Fig. 15

PIERS**Figs. 13 and 14**

Alternate courses of a porch column and balustrade. This is the smallest column that can be built with finished faces on all four sides and true bonding of tile. Both sides of balustrades have finished faces. (See Figs. 11 and 12)

Figs. 15 and 16

Details of alternate courses of a 24 1/4 inch square column. Our engineering department will gladly furnish layouts of larger size columns on request

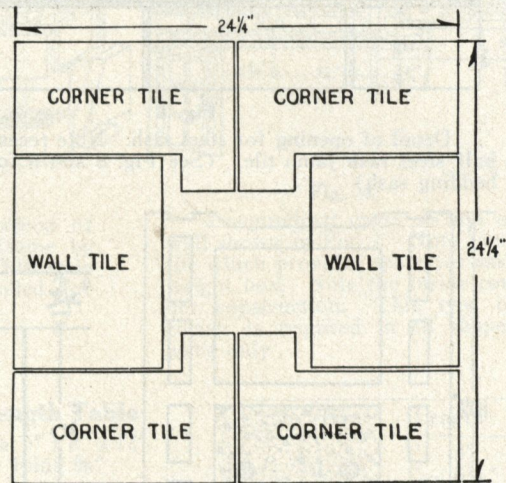


Fig. 16

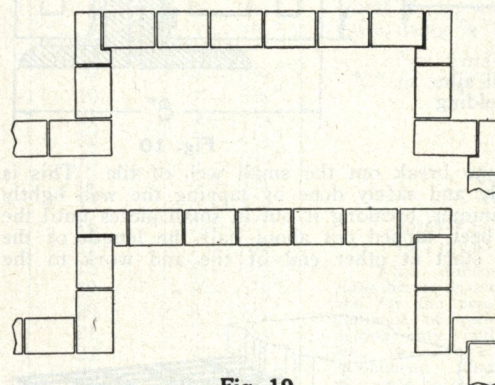


Fig. 19

Alternate courses of a typical bay window wall. Note that a true bond is preserved at all points in the wall without any cutting of tile

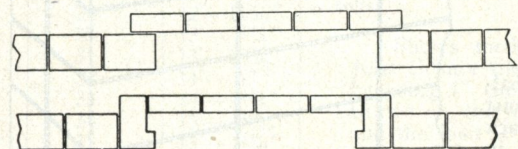
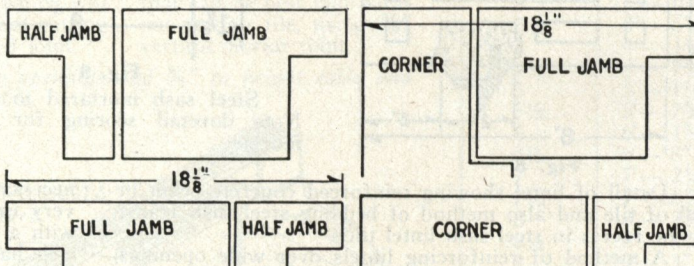


Fig. 20

Alternate courses of an 8 inch chimney recess. Chimney projects only 4 inches from face of wall

**Figs. 17 and 18**

Alternate courses showing the minimum distance between two windows, and the minimum distance from corner of building to nearest window without cutting of tile

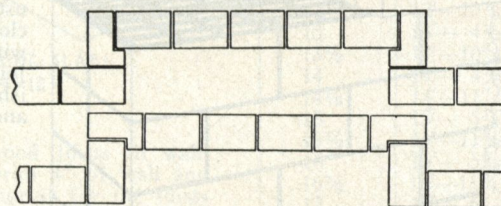
BAYS AND CHIMNEYS

Fig. 21

Alternate courses of a 12 inch chimney recess. Preserves a true bond without cutting of tile. Chimney projects 12 inches from face of house wall. The chimney itself should be of brick

NATCO DOUBLE SHELL FACE TILE

SUGGESTIONS FOR PILASTER CONSTRUCTION

The walls of industrial and commercial buildings are often designed to be built to considerable height without cross walls, and to bear heavy concentrated loads, such as floor beams and roof trusses. In these cases it is customary to build pilasters to stiffen the wall

for wind pressure, and to carry these concentrated loads. Below are shown several pilaster layouts, and our engineering department will gladly furnish others if needed. Note that all pilasters are thoroughly bonded in the wall.

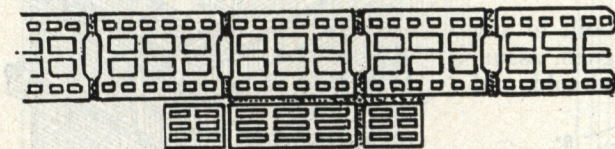


Fig. 22
Alternate courses of a pilaster 24½" wide with
4½" projection

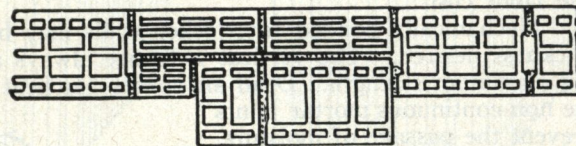


Fig. 25
Alternate courses of a pilaster 18½" wide with
4½" projection

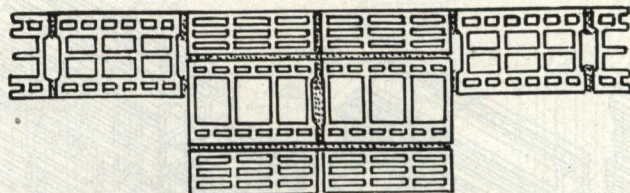


Fig. 23
Alternate courses of a pilaster 24½" wide with
8½" projection

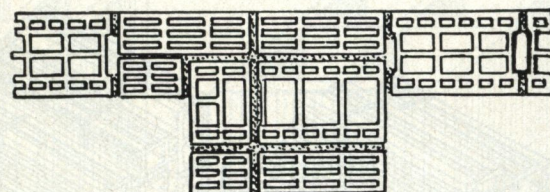


Fig. 26
Alternate courses of a pilaster 18½" wide with
8½" projection

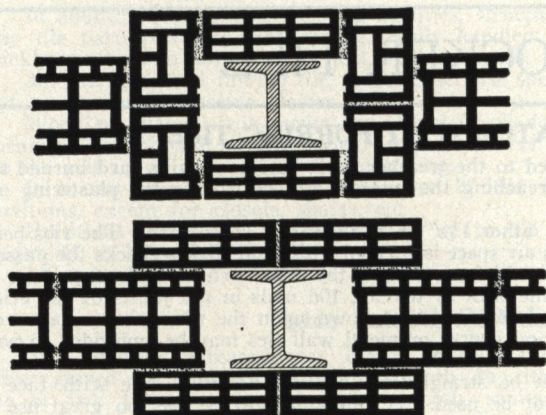


Fig. 24
Alternate courses showing method of enclosing H column.
Gives a true bond. Our engineering department will gladly furnish
layout for enclosing other sizes of columns

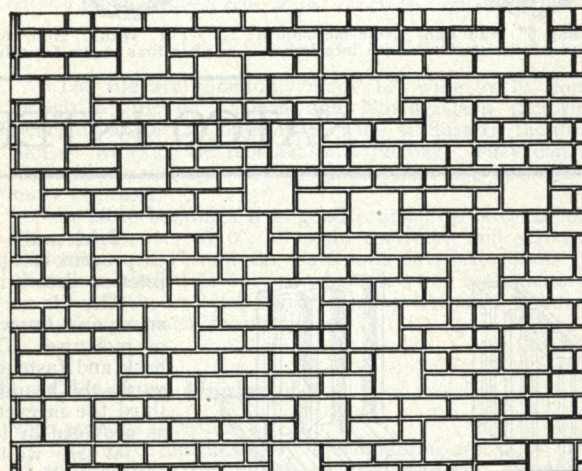


Fig. 27
Detail of a typical random bond wall obtained by the use of
the T-100 Random Bond Tex Tile combined with standard Tex
Tile units. This new unit permits many distinctive effects to
be obtained.

NATCO DOUBLE SHELL FACE TILE

NATCO INTERLOCKER TILE

General

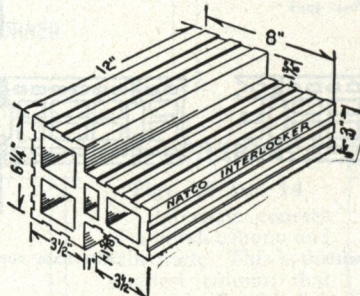
Natco Interlocker Tile is used for load bearing and closure walls, either in combination with brick or stucco, or without facing.

The units are light enough to be handled with one hand—are laid quickly and easily—effect a considerable saving in mortar and labor cost.

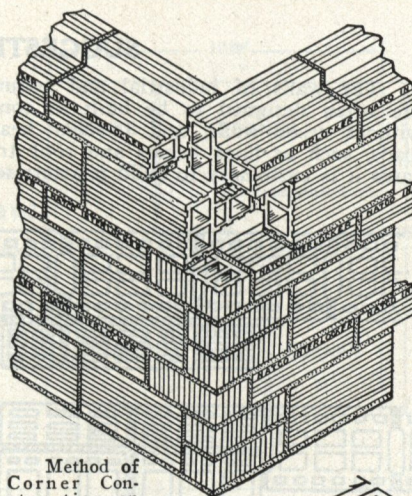
Mechanically bonded Interlocker walls may be built to any thickness desired. The vertical webs are always aligned, assuring maximum strength. Dead air spaces bar heat and cold, and the non-continuous mortar joints prevent the passage of moisture. Plaster is applied directly to the interior surface without furring.

Natco Interlocker provides economical, fire-proof, strong, permanent construction.

All structural details may be worked out as easily as the ones illustrated on this page. Information on specific construction problems will be gladly furnished.

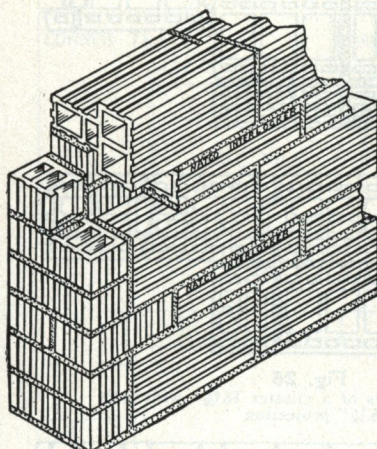
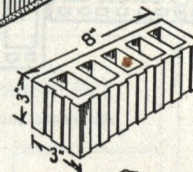


Dimensions of Natco Interlocker

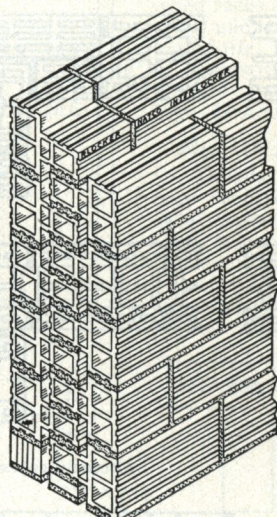


Method of Corner Construction on 8" Walls

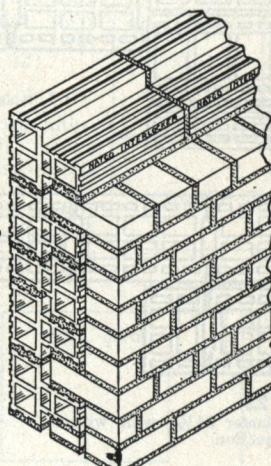
Right: Dimensions of Closure Block. One face and one end are scored—other face and end smooth



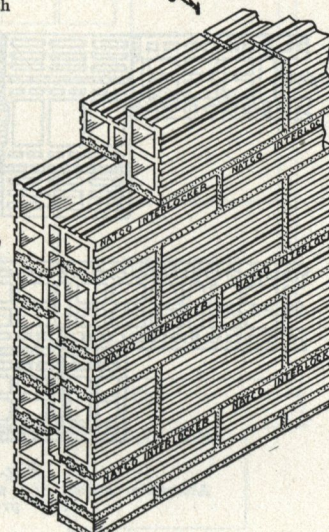
Closing 8" Wall End. Note mechanical bond of closure block with interlocker



12" Tile Wall. Note block used in first course for starter



12" Combination Wall (8" tile, 4" brick)



8" Tile Wall. Note starting slab used in first course

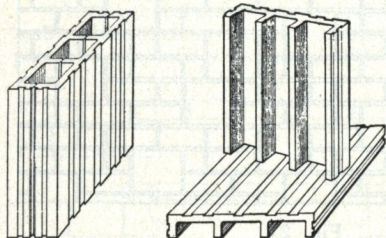
NATCO INTERLOCKER TILE

NATCO SPLIT FURRING TILE

Brick walls exposed to the weather must be furred with hard burned tile, to prevent dampness reaching the interior and destroying the plastering and interior decorations.

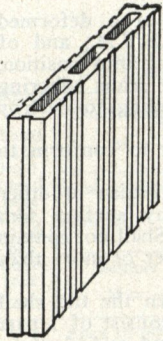
The tile are made either 1½" or 2" thick and 12" square. The ribs being set against the wall, an air space is formed which effectively checks the passage of moisture. They should be set with the ribs vertical without mortar at back and fastened to the wall by driving 10d nails in the joints of the brickwork, the head of the nail being bent down upon the tile, using a nail every third tile in every second course or metal wall ties may be embedded in wall, as provided by local building codes.

Where walls must be straightened or furred out to line with face of piers the 2" tile cannot be used. If ceiling height is not too great use 3" partition tile. If the space is greater than 3" the tile may be set out from the wall leaving a clear air space behind them. They should be braced at intervals by the use of drive anchors or 4" tile can be used without the anchors. This is known as free standing furring. The face of the tile is grooved for plastering.

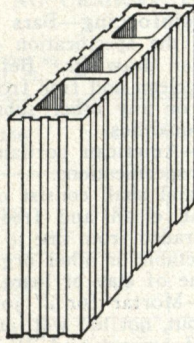


NATCO SPLIT FURRING TILE

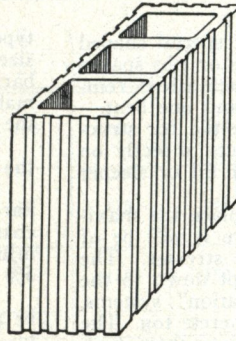
NATCO PARTITION TILE



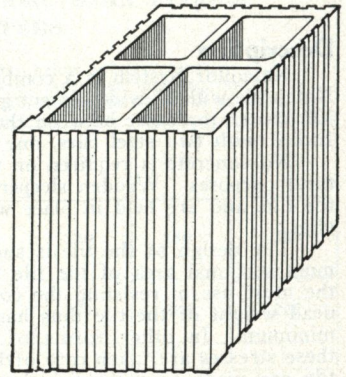
2 inch
 Eastern Factories
 2-cell—2x8x12—10 lb.
 Ohio Factories
 3-cell—2x12x12—15 lb.
 Western Factories
 3-cell—2x12x12—15 lb.



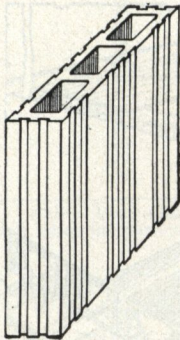
4x12x12
 Eastern Factories
 3-cell—16 lb.
 Ohio Factories
 3-cell—16 lb.
 Western Factories
 3-cell—16 lb.



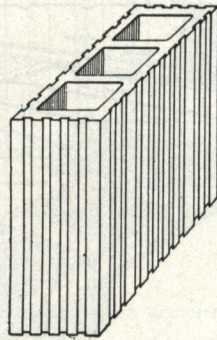
6x12x12
 Eastern Factories
 4 and 6 cell—22 and 24 lb.
 Ohio Factories
 3-cell—22 lb.
 Western Factories
 3-cell—22 lb.



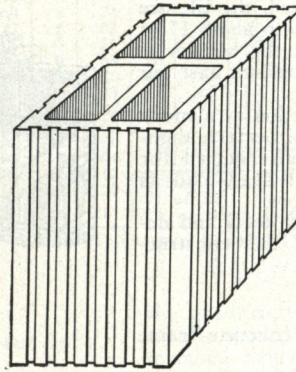
10x12x12
 Eastern Factories
 6-cell—36 lb.
 Ohio Factories
 4-cell—36 lb.
 Western Factories
 6-cell—36 lb.



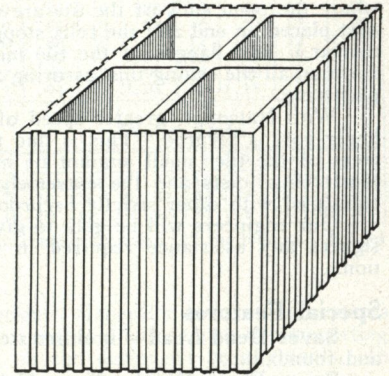
3x12x12
 Eastern Factories
 3-cell—15 lb.
 Ohio Factories
 3-cell—15 lb.
 Western Factories
 3-cell—15 lb.



5x12x12
 Eastern Factories
 6-cell—22 lb.
 Ohio Factories
 3-cell—19 lb.
 Western Factories
 3-cell—19 lb.



8x12x12
 Eastern Factories
 6-cell—30 lb.
 Ohio Factories
 4-cell—30 lb.
 Western Factories
 6-cell—30 lb.



12x12x12
 Eastern Factories
 6-cell—40 lb.
 Ohio Factories
 4-cell—40 lb.
 Western Factories
 6-cell—40 lb.

Note: Additional shapes available at Ohio factories: 5x12x12—6 cell—26 lb., 6x12x12—6 cell—28 lb., 7x12x12—3 cell—25 lb., 7x12x12—6 cell—30 lb., 8x12x12—6 cell—32 lb., 9x12x12—4 cell—32 lb.

In addition to their fire-resisting qualities, structural clay tile partitions are light, strong, easily handled by bricklayers, and do not transmit heat, cold or sound.

All partitions and furring tile, unless otherwise specified, are scored to receive plaster.

Wood or channel iron bucks are placed in all door openings, and should be 1½" wider than thickness of the tile and act as grounds for the plastering.

It is not generally practicable to use 2" tile for partitions, except for closets, shafts, etc.

Partitions of 3" can be safely used up to 12' in height, 4" to 16' and 6" to 20'.

The tile are commonly made 12" wide by 12" long, except 2" tile at Eastern and Northeastern factories, which is made 12" long but 8" wide at Eastern factories and 6" wide at the Northeastern factory. They can be made any size required, but special sizes are necessarily more expensive.

In office buildings it is good practice to have all elevator enclosures of 6", all main corridors and stairway enclosures of 4" and the partitions between rooms 3". Partitions should be bonded where meeting and anchored to wood bucks or brick walls by using 10d nails, or metal wall ties, in each second joint.

Natco Smooth Partition Tile (Glazed or Unglazed)

At a slightly increased cost, Natco Partition Tile, either glazed or unglazed, is made smooth on either one or two faces, as desired. The smooth, sanitary, easily cleaned interior surfaces of the tile walls, make it very desirable for warehouses, industrial plants, elevator shafts and similar applications.

Glazed or unglazed backing up tile, with smooth face, can also be furnished to be used in combination

with smooth partition tile.

Standard thicknesses of this material are 4", 6" and 8". Other sizes of smooth partition tile will be manufactured if sufficient quantities are ordered.

Standard glazed or unglazed partition tile, with one or two faces smooth, are always furnished with one end smooth so that tile can be used as a closure or lintel in addition to its use as wall tile.

NATCO PARTITION TILE

NATCOFLOR

Description

Natcoflor System is a combination of special shaped Natco tile with 2" wide cement grout joists or ribs spaced 13" center to center between the tile. Each rib is reinforced with two steel bars, one straight and one bent.

No concrete is required on top of the tile for structural purposes. Wooden sleepers are placed directly on the tile, and are held in place with cinder fill or sleeper clips.

The design of the tile is such as to place the maximum sectional area of the tile unit where it will be of the most use in resisting the compressive stresses. The dead weight of the tile thus has been kept down to the minimum. In other forms of "Combination" systems, these stresses are taken care of by the concrete top. The tile are made from special clay which gives them high compression strength. Tests have repeatedly and clearly demonstrated that tile may be safely figured to take compressive stresses of 1000 pounds per sq. in. of net sectional area, allowing an ample factor of safety.

Cement grout or mortar mixed one part cement to two and one-half parts sand is used for the 2" joists. This thoroughly covers the steel reinforcing and completely fills the joints between the tile. (At girders, etc. where the open ends of the tile are exposed, the tile are first placed on end and the cells stopped with about 1" of mortar.) The flanges of the tile meet at the bottom to form an all tile ceiling thus assuring an excellent base for plastering.

With Natcoflor, greater speed of erection at a much lower cost is secured. This is due to the perfect alignment of the tile, small amount of material required for reinforcing joists and the extremely light dead load as compared with other strictly fireproof floors.

Our engineers will be glad to give architects and designers any assistance required in using this construction.

Special Features

Saves Dead Load—In either steel or concrete frame and foundation.

Saves Floor Depth—2" to 4" less than other construction.

Saves Plastering—No metal lath or suspended ceiling. A continuous tile surface.

Saves Labor Cost—Permits speedy erection the year around.

Saves Insurance—Strictly fireproof construction.

Typical Specification for Natcoflor

Fireproofing—The floor construction shall be what is known as "Natcoflor" system which consists of special structural clay with flanges at the bottom forming a tile ceiling, and 2" wide mortar joists 13" on center between the tile. Each joist shall be reinforced with 2 steel bars at the bottom, one to be bent and one straight. The bent bars shall extend up and continue over the point of support, where possible to the $\frac{1}{4}$ point of the adjacent span. No concrete or mortar is required on top of the tile for structural purposes.

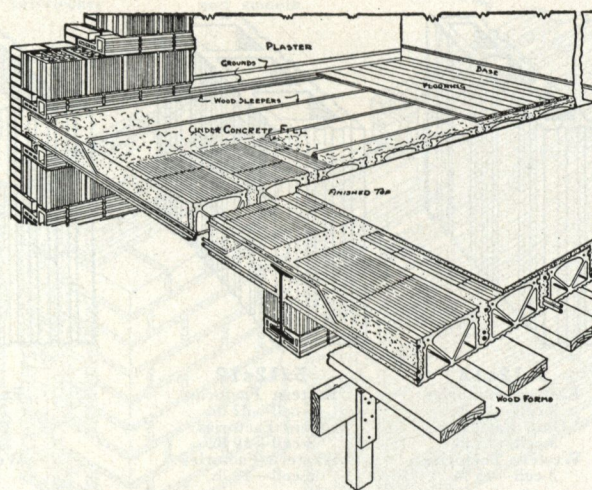
Tile—The size of the tile shall be as called for on the plans. The sizes given are the depth of the tile. All tile shall be of hard burned fire clay, free from damaging impurities and large defects and properly scored on all exterior surfaces. Actual weight of the tile shall not vary more than 5% over or under weight for different sizes published by the NATIONAL FIREPROOFING CORPORATION. Tile shall be placed end to end in straight rows with bottom flanges and ends as tight as possible together. Break joints in alternate rows of tile by the use of half tile. Tile used at ends of rows shall be placed on ends and stopped with a small quantity of mortar. Rows of tile should line up from span to span. All tile must be wet before pouring mortar to insure a good bond.

Steel Reinforcing—Bars shall be of a deformed type meeting the specification of the A.S.T.M., and of sizes shown on drawings. Before placing into position, bars must be clean and free from rust or scale, adhering material, oil or any other substance tending to destroy the bonding qualities.

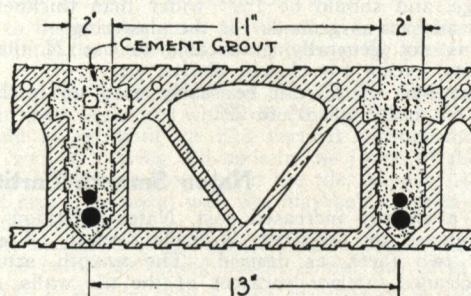
Cement—American portland cement to conform to the A.S.T.M. specifications.

Sand—Sand shall consist of quartz grains or other hard material, clean and free from any surface film coating and graded from fine to coarse. Shall not contain injurious vegetable or other organic matter or more than 5% by volume of clay or loam.

Mortar—Mortar for 2" joist between the tile shall be mushy grout, not too wet, and shall consist of 1 part by volume of cement and $2\frac{1}{2}$ parts sand and shall be mixed in a batch mixer. Mortar shall be dumped on top of tile and swept into place in joists between tile, so that all joists and joints are properly filled. Mortar shall be puddled so that steel reinforcement is completely encased in mortar.



Perspective view of Natcoflor System. Part of the finished floor is wood, the other part cement, to show the method of laying. The wall is Natco Header Backer.



Notice in the detail view, how the tile meet at the bottom, to form an all-tile ceiling.

NATCOFLOR SYSTEM OF FIREPROOF FLOORS

TILE DEPTH AND STEEL AREA "NATCOFLOR" COMBINATION LONG SPAN FLOORS NO CEMENT TOP, 2" MORTAR RIBS 13" ON CENTERS

f_m and f_t = 1000 lb. per sq. in.
 f_s = 16,000 lb. per sq. in.

$$\frac{E_t}{E_s} = \frac{1}{10}$$

$\frac{3}{4}$ " mortar below reinforcement.
 S = Area of steel per joist, sq. in.
 T = Depth of tile, in. = depth of floor.

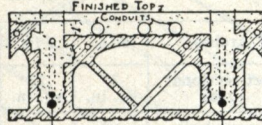
Total safe load (dead plus live), pounds per square foot	Continuous span $M = \frac{WL}{12}$		150	165	180	195	210	225	240	260	300	335								
	Semi-continuous span $M = \frac{WL}{10}$		125	135	150	160	175	185	200	220	250	280								
	Simple span $M = \frac{WL}{8}$		100	110	120	130	140	150	160	175	200	225								
Span in feet			T	S	T	S	T	S	T	S	T	S	T	S	T	S				
6	4	.16	4	.17	4	.19	4	.20	4	.22	4	.23	4	.25	4	.28	4	.31	4	.35
7	4	.21	4	.23	4	.26	4	.27	4	.30	4	.32	4	.34	4	.38	5	.42	5	.46
8	4	.28	4	.30	4	.33	4	.36	4	.39	5	.41	5	.43	5	.47	5	.51	5	.55
9	4	.35	4	.38	5	.42	5	.45	5	.48	5	.51	5	.54	6	.58	6	.62	6	.66
10	5	.33	5	.35	5	.39	5	.42	5	.46	5	.49	5	.52	6	.56	6	.60	6	.64
11	5	.39	5	.43	5	.47	5	.50	6	.54	6	.58	6	.62	6	.66	7	.70	7	.74
12	5	.47	5	.51	6	.55	6	.60	6	.64	7	.68	7	.72	7	.76	8	.80	8	.84
13	6	.43	6	.47	6	.52	6	.57	6	.62	7	.67	7	.72	8	.77	8	.82	9	.87
14	6	.50	6	.54	6	.60	6	.64	7	.68	7	.73	8	.78	8	.83	9	.88	9	.93
15	6	.57	6	.62	7	.67	7	.71	7	.76	8	.81	8	.86	9	.91	9	.96	10	1.01
16	6	.65	7	.68	7	.73	8	.77	8	.82	9	.87	9	.92	10	.97	10	1.02	11	1.07
17	7	.61	7	.66	7	.71	8	.76	8	.81	9	.86	9	.91	10	.96	10	1.01	11	1.06
18	7	.68	7	.74	8	.79	8	.84	9	.89	9	.94	10	.99	10	1.04	11	1.09	12	1.14
19	7	.76	8	.80	8	.85	9	.89	9	.94	10	.99	10	1.04	11	1.09	12	1.14	12	1.19
20	8	.71	8	.77	8	.82	9	.87	9	.92	10	.97	10	1.02	11	1.07	12	1.12	12	1.17
21	8	.78	8	.85	9	.88	10	.93	10	.98	11	1.03	11	1.08	12	1.13	12	1.18	12	1.23
22	9	.75	9	.81	9	.87	10	.92	10	.97	11	1.02	11	1.07	12	1.12	12	1.17	12	1.22
23	9	.82	9	.89	10	.95	10	.99	11	1.04	11	1.09	12	1.14	12	1.19	12	1.24	12	1.29
24	9	.89	10	.96	10	.99	11	1.04	11	1.09	12	1.14	12	1.19	12	1.24	12	1.29	12	1.34
25	10	.86	10	.93	12	.84	12	.89	12	.94	12	1.00	12	1.05	12	1.10	12	1.15	12	1.20
26	10	.93	12	.81	12	.90	12	.96	12	1.01	12	1.06	12	1.11	12	1.16	12	1.21	12	1.26
27	12	.81	12	.88	12	.97	12	1.04	12	1.13	12	1.18	12	1.23	12	1.28	12	1.33	12	1.38
28	12	.87	12	.94	12	1.05	12	1.12	12	1.20	12	1.25	12	1.30	12	1.35	12	1.40	12	1.45
29	12	.94	12	1.01	12	1.12	12	1.20	12	1.28	12	1.33	12	1.38	12	1.43	12	1.48	12	1.53
30	12	1.00	12	1.08	12	1.20	12	1.28	12	1.36	12	1.44	12	1.52	12	1.60	12	1.68	12	1.76

Design Data											
Size, in.	4	5	6	7	8	9	10	11	12	13	14
Mortar per sq. ft.	.051	.064	.077	.090	.102	.115	.128	.141	.154	.167	.180
Wt. of tile	26	28	30	32	34	37	40	44	47	50	53
Wt. of floor	30	34	39	42	45	48	52	56	59	62	65

Note: Unit shear not to exceed 60 lb. per sq. in. Width of joist may be figured $3\frac{1}{2}$ " in computing shear ($2\frac{1}{2}$ " for joist and $\frac{3}{4}$ " for each adjoining shell of tile).

Conduits

When cement or terrazzo floors are used, a run for conduit may be easily made by putting in a series of tile less in depth than the rest of the floor. In the case of wood floors, the conduit may be run between the sleepers.

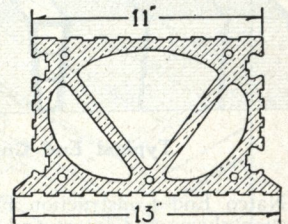


Negative Moment and Shear Tile

Our corporation is able to furnish a special Natcoflor tile for use adjacent to the supporting members to take care of any excessive negative moment or shear at these points. This tile is so designed that the compressive area at lower portion of the tile is the same as the area in the upper portion besides having the additional key for

the grout at the bottom. Generally two or three pieces of this special tile are required adjacent to the supporting member, depending on the designer's requirements. In some cases they would not be needed.

The advantages of this tile are that in some cases a saving in depth and cost of floor may be obtained. For example, a floor must sometimes be increased in depth because of excessive shear or negative moment although it meets the other design requirements. The tile weighs little more than the ordinary Natcoflor and the dead weight of the floor as a whole is not affected.



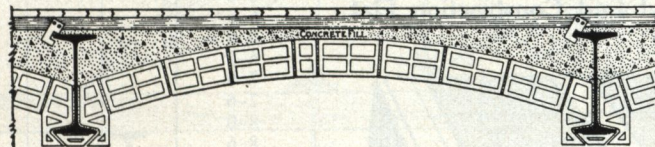
Negative Moment and Shear Tile

NATCOFLOR SYSTEM OF FIREPROOF FLOORS

This form of arch combines great strength with economy and lightness. It is particularly adaptable to warehouses, lofts, factories, side-walks, or wherever a flat ceiling is not necessary.

The 6" arch is most commonly used and weighs approximately 35 lb. per sq. ft.

End construction tile may be used, but they are unsatisfactory unless the arches are of uniform span and rise throughout. Where a very light, strong arch is re-



quired in deep beams, and a flat ceiling is also demanded, use a suspended ceiling below the beam.

The most effective location for the tie rods to counteract the thrust is near the bottom of the

beams. They may be placed there and painted, or set higher and protected by the arch. If this is done the rods in the end spans should be made forked or double rods set crossing each other.

Complete engineering data on application.

NATCO SEGMENTAL ARCH FLOOR

NATCO FLAT ARCH FLOORS

General

Flat arches as adapted to floors and roofs are made up of various shaped tile as shown on Natco Page 48. The tile resting against the beams are called "skews" and the protection for the beam known as the "soffit" tile is held in place by the bevel on the "skews." The intermediate tile are called "inters" and the center one the "key."

Natco Flat Arch in general comes under two divisions, namely, the "End Construction Flat Arch" and the "Combination Side and End Construction Flat Arch" each described and illustrated below.

The depth of the arch must be proportioned to the span between the beams and to a certain extent to the load carried. A safe general rule for finding the depth of the arch in inches is to multiply the span in feet by $1\frac{1}{2}$ " and add the thickness of the protection below the beams. This is the code requirement of the larger cities in general.

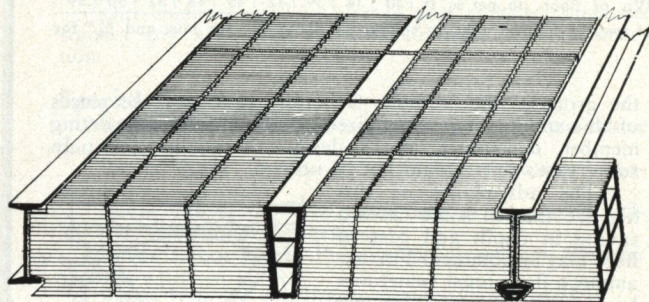
The outstanding advantage of the flat arch is its adaptability to speed in construction independent of temperature. Centers need remain in place but one-tenth to one-fourth as long as required under concrete construction. Moisture due to cement hydration is minimized.

Flat arch is most economical. Although the arch itself is placed by bricklayers, this labor cost is more than offset by the low centering cost. Centering is hung. (See Natco Page 47.) There is little or no lumber loss—no nails are used. Floors beneath are accessible for work by other trades.

By the omission of tile units at the time of erection, pipe work of the mechanical trades is economically accommodated. Holes may be cut at any time, almost with impunity, and later easily patched.

The all-tile ceiling provides the most satisfactory surface for plastering.

Natco End Construction Flat Arch

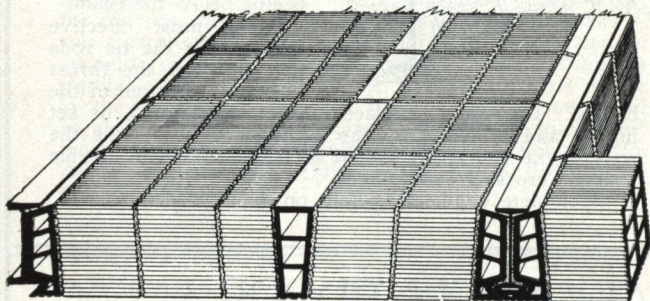


Typical End Construction Arch

Natco End Construction Flat Arch consists of end construction skews and inters and side construction keys.

This arch is the most adaptable form of arch, since the end construction skew can be cut to fit different elevations and sizes of the beams. Of course, it is advisable to keep the bearing beams as near the same elevation as possible so that the same skew which is usually cut to allow a $1\frac{1}{2}$ " or 2" soffit of tile under the beams may be used throughout and make for uniformity and, therefore, economy of construction. Moreover, this gives a more uniform ceiling level.

Natco Combination Side and End Construction Flat Arch



Typical Combination Side and End Construction Arch

Natco Combination Side and End Construction Flat Arch consists of side construction skews and keys and end construction inters.

By reversing the direction of the cells in the skews, better protection is given to the sides of the beams by the mortar joints and by the shells of the skews. The inters must be set end to end in straight courses from skew to key. The typical section illustrates the method of assembling the various members of this arch.

Side construction skews, being made by die to fit the various size standard beams, cannot be changed, as can end construction skews. If it is desired to use side construction skews uniformly throughout a building, the bearing beams must be on the same level at the bottom and of sufficient depth to permit the top of the skew to go under the top flange of the beam. Of course, special conditions can be taken care of by using end construction skews at these points and cutting them to fit.

Designing Data

The following table is applicable to all shapes of tile. Generally speaking, hollow tile of various shapes but of the same depth and cross-sectional area, have equal strength, and therefore, the strengths of arches of equal depth are directly proportional to their net sectional areas. The depth of arch as given in the table includes the protection underneath the bottom of the beam or the thickness of the soffit tile.

The strength of any arch depends as largely upon the workmanship as upon the material. The spans given in the table are safe if the arches are properly set, but may not agree with the requirements of the Building Codes of various cities.

Safe Loads given in the table have been figured for the Natco Combination Arch of side construction skews and keys with end construction inters. The net sectional areas of tile indicated, are for the keys—the critical point of the arch—and are taken per foot of tile parallel to beams.

Weights of arches have *not* been deducted from safe loads in the table; this and other dead load must be deducted to obtain the net safe live load for any arch and span.

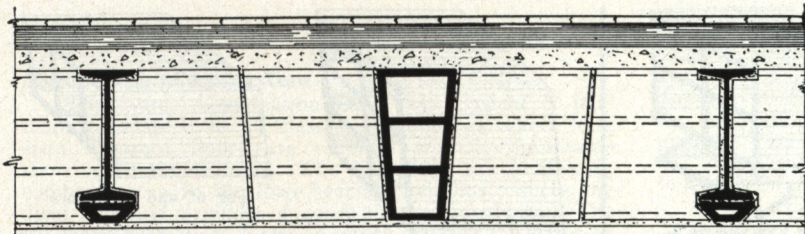
TABLE OF SAFE LOADS PER SQ. FT. (DEAD AND LIVE)

Factor of Safety of 7

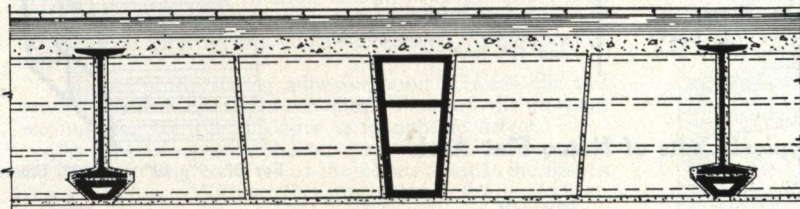
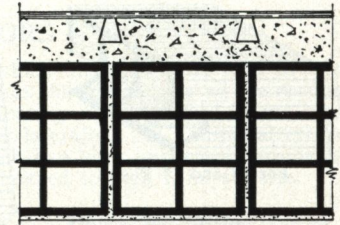
Arches	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.	15 in.
Net sectional areas	27 sq. in.	27 sq. in.	27 sq. in.	27 sq. in.	36 sq. in.	36 sq. in.	36 sq. in.
Average wt. per sq. ft.	26 lb.	30 lb.	32 lb.	36 lb.	40 lb.	48 lb.	56 lb.
Span—ft. and in.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
3-0	420	490	560	630	933	1120	1400
3-3	357	417	477	537	795	954	1193
3-6	308	360	411	462	685	823	1028
3-9	268	313	358	403	597	716	895
4-0	236	276	315	354	525	630	786
4-3	.....	244	279	314	465	558	697
4-6	.....	218	249	279	415	497	622
4-9	.....	.....	223	251	372	447	558
5-0	.....	.....	201	227	336	402	504
5-3	.....	.....	182	205	305	365	457
5-6	.....	.....	.....	187	277	333	417
5-9	.....	.....	.....	171	254	305	381
6-0	.....	.....	.....	157	233	280	350
6-3	.....	.....	.....	.....	214	258	322
6-6	.....	.....	.....	.....	198	238	298
6-9	.....	.....	.....	.....	.....	221	276
7-0	.....	.....	.....	.....	.....	206	257
7-6	.....	.....	.....	.....	.....	178	223
8-0	.....	.....	.....	.....	.....	157	197
8-6	.....	.....	.....	.....	.....	.....	174
9-0	.....	.....	.....	.....	.....	.....	155
9-6	.....	.....	.....	.....	.....	.....	140
10-0	.....	.....	.....	.....	.....	.....	126

Engineering Service

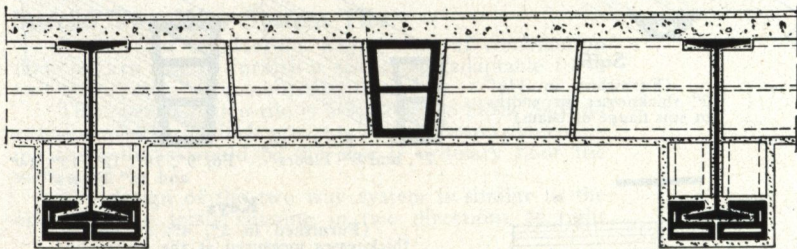
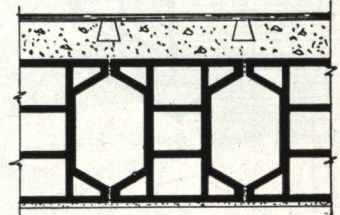
It is part of NATIONAL FIREPROOFING CORPORATION's service to design the arches for each individual span and furnish schedules and sketches showing the pieces which should be used in each size of span, and to make skews which will fit the structural steel work.



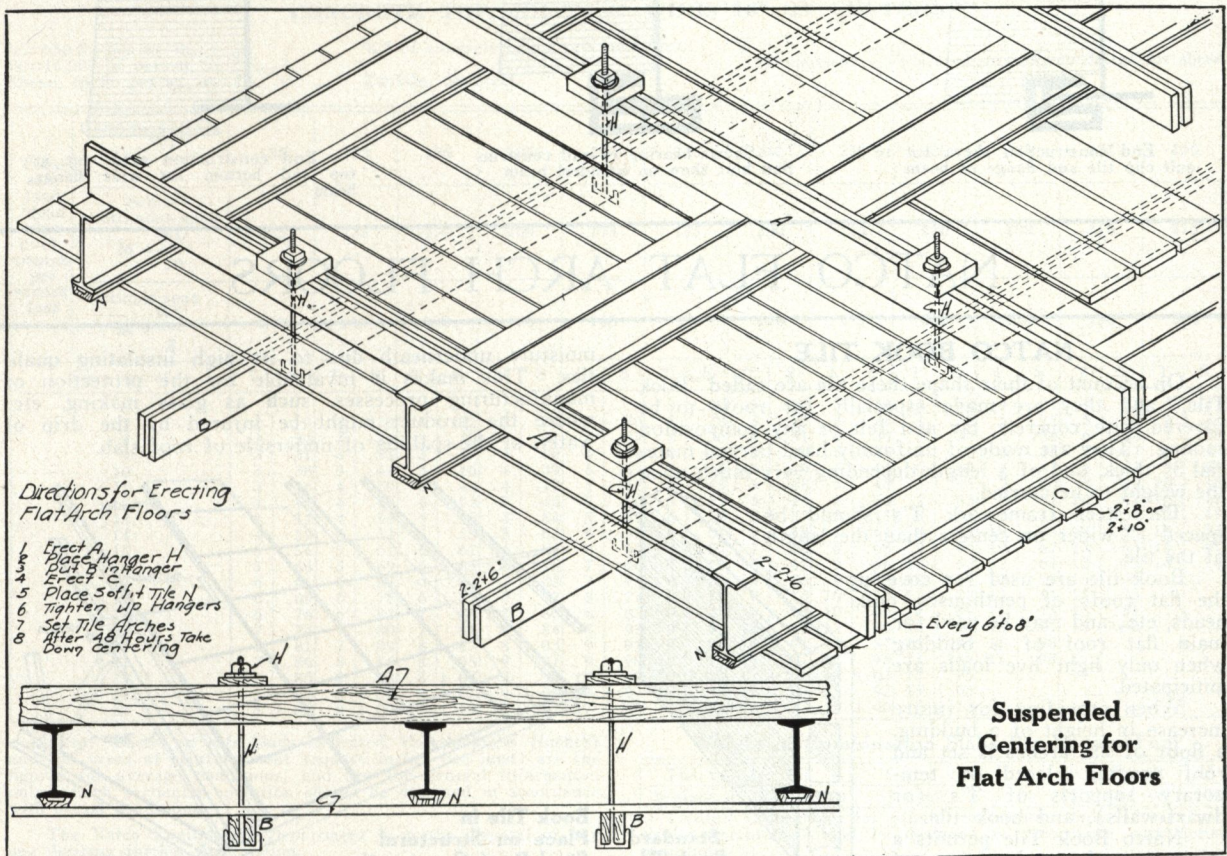
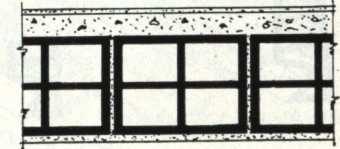
Typical Sections—Standard End Construction



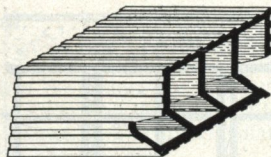
Typical Sections, X-Tile Type—Western Factories Only



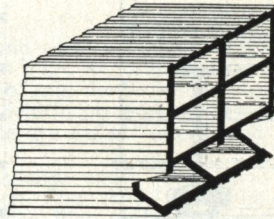
Typical Sections—Raised on Floor Beams for a Paneled Ceiling Effect



NATCO FLAT ARCH FLOORS



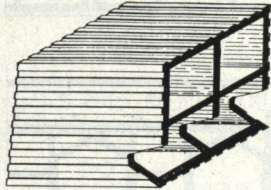
For 6" and 7" Floors



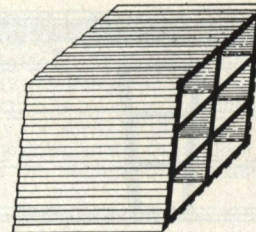
For 13", 14" and 15" Floors

Bottom Cut End Construction Skews

(Note: The 12" length measured at center of arch is standard)



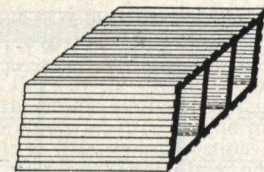
For 8", 9", 10" and 12" Floors



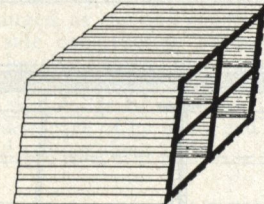
For 13", 14" and 15" Floors

Inters

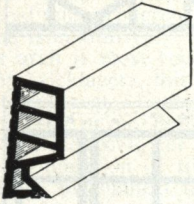
(Note: Furnished in 8" and 12" lengths)



For 6" and 7" Floors



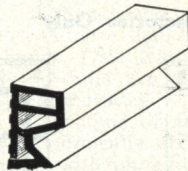
For 8", 9", 10" and 12" Floors

Typical Units of Natco Flat Arch

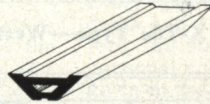
For 9", 10", 12", 13", 14" and 15" Floors

Side Construction Skews

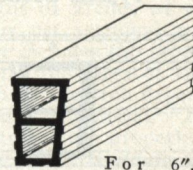
(Note: $4\frac{1}{2}$ " in thickness at center-line of arch. These skews can be furnished only for standard flange beams)



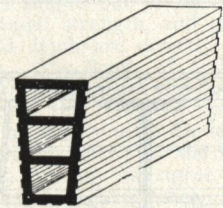
For 6", 7" and 8" Floors

**Soffit**

(Furnished in $1\frac{1}{2}$ " 2" thicknesses in widths to suit flange of beam)



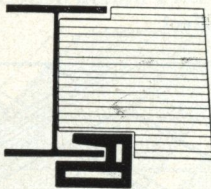
For 6", 7", and 8" Floors



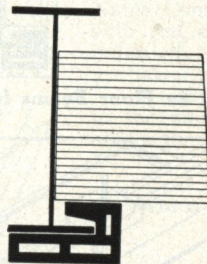
For 9", 10", 12", 13", 14" and 15" Floors

Keys

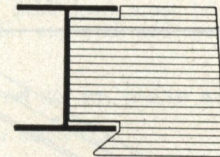
(Furnished in 3", 4", 5" and 6" thicknesses measured at the center line of arch)



End construction skew, cut to suit clip tile and flange of beam



Shows bearing of end construction butt skew on spandrel beam



End construction skew cut at top and bottom for wide flange beam

NATCO FLAT ARCH FLOORS**NATCO BOOK TILE**

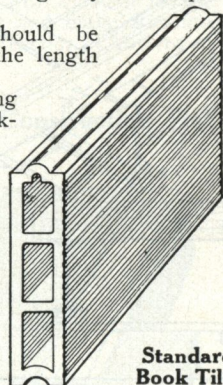
On account of their shape these tile are called "Book Tile," and they are made especially for roofs to be covered with concrete, tar and felt or any composition roofing. They are made of uniformly hard-burned material $3\frac{1}{2}$ " thick, and of a length depending very much upon the weight to be carried.

The steel framework T's should be spaced 1" wider on centers than the length of the tile.

Book tile are used for covering the flat roofs of penthouses, bulkheads, etc., and may be used for main flat roof of a building when only light live loads are anticipated.

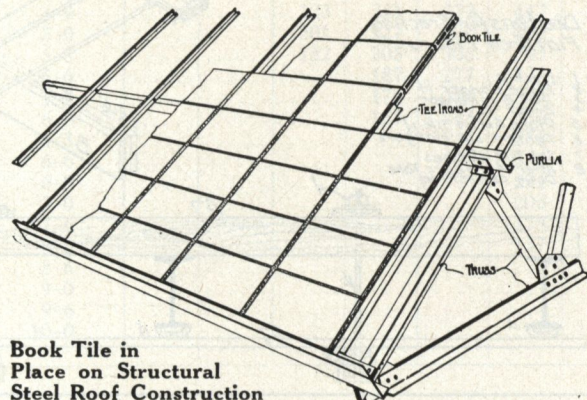
When providing for future increase in height of a building, a floor of flat arches is set and roof grading placed on temporary supports of T's (or dwarf-walls), and book tile.

Natco Book Tile permits a minimum of condensation of



Standard Book Tile

moisture underneath due to its high insulating qualities. This makes it invaluable for the protection of manufacturing processes, such as glass making, etc., where the product might be injured by the drip of water, or the spalling of underside of roof slab.



Book Tile in Place on Structural Steel Roof Construction

NATCO BOOK TILE

NATCO COMBINATION LONG SPAN FLOORS

Natco One Way System

The Natco Combination One Way System is particularly adapted to all classes of buildings where long span fireproof floors are required without the beams showing in the ceilings. The Natco Structural Tile in combination with the load bearing concrete reduces the dead load and provides a good plastering surface. The tile make permanent forms in which are cast the series of connected concrete "T's."

The tile in a line of units are all in contact, and hold each other securely in the proper positions. They are not displaced in pouring the concrete, and no realignment is necessary.

The naturally strong adhesive bond between tile and concrete, aided by the mechanical bond of the dovetail scorings on the tile, produce a monolithic effect.

In these floors, the Natco Structural Tile fireproofs the load carrying concrete of the beams against the flames of a fire below. Without this protection, a fire is likely to cause spalling, rapid weakening of the floor, and ultimate failure.

Special Two Way System Tile

Besides our regular one way system of combination floor we are able to furnish a special tile adaptable for a two way system of combination floor.

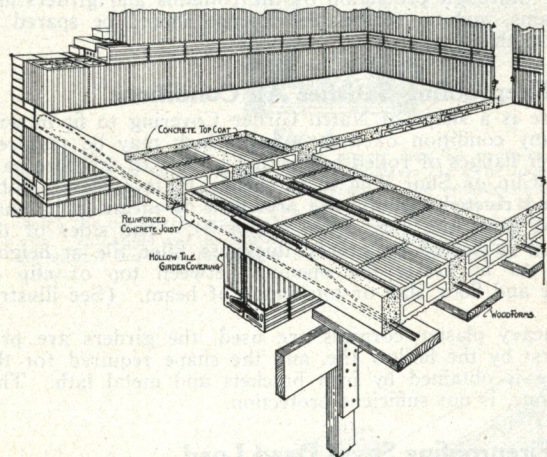
This special Natco tile is a hollow tile block with no exterior openings, which prevents the concrete from entering the cells as would be the case if ordinary floor tile were used.

The design of the two way system is similar to the one way, the joists running in two directions at right

angles instead of one which distributes the load in two directions. This floor has the advantages of decreasing the depth of slab, eliminating deep spandrel beams, and giving a very rigid floor laterally. No additional cross-bracing is required, which is a very important consideration in tall buildings subjected to high wind stresses.

Perspective View of Typical One Way Combination Floor

Note economical wood centering used; 2x8" or 2x10" under each joist is sufficient



TILE DEPTH AND STEEL AREA REQUIRED, ONE WAY COMBINATION FLOOR SLABS, 2" CONCRETE TOP, JOISTS 4" WIDE, 16" ON CENTERS

fc.=650 lb. per sq. in.
fs.=16,000 lb. per sq. in.
Shear, 60 lb. per sq. in.

$$\frac{E_c}{E_s} = \frac{1}{15}$$

$\frac{3}{4}$ " of concrete below reinforcement.

T=Tile; S=Steel.

*If moment $\frac{WL}{12}$ is used, investigate design for shear.

Total safe load (dead plus live), pounds per square foot	Continuous Span $M = \frac{WL^2}{12}$		150		165		180		195		210		225		240		260		300		335		375		450	
	Semi-continuous span $M = \frac{WL^2}{10}$		125		135		150		160		175		185		200		220		250		280		310		375	
	Simple span $M = \frac{WL^2}{8}$		100		110		120		130		140		150		160		175		200		225		250		300	
	Span in feet		T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S
6												3	20	3	22	3	24	3	28	4	24	4	27	5	27	
7		3	19	3	20	3	22	3	24	3	26	3	28	3	30	4	26	4	30	5	27	5	30	6	31	
8		3	24	3	26	3	29	3	31	3	34	3	36	4	31	4	34	5	32	5	36	6	34	7	35	
9		3	31	3	33	3	37	3	40	4	34	4	36	4	39	5	35	5	40	6	38	7	37	8	40	
10		3	38	3	41	3	46	4	39	4	42	4	45	5	40	5	44	6	42	7	41	8	41	9	44	
11		3	46	4	39	4	44	4	47	5	42	5	45	5	48	6	45	7	45	7	50	8	49	10	48	
12		4	43	4	47	4	52	5	46	5	50	5	53	6	49	6	54	7	53	8	53	10	47	12	48	
13		4	51	4	55	5	50	5	54	5	59	6	53	6	57	7	55	8	55	9	55	10	56	12	57	
14		4	59	5	53	5	58	5	63	6	58	6	61	7	58	7	64	8	64	10	58	12	54	15	53	
15		5	56	5	61	5	67	6	61	6	67	7	66	8	67	9	66	10	67	12	63	15	61			
16		5	64	5	69	6	65	6	70	7	66	7	70	8	67	9	66	10	68	12	64	12	71	15	70	
17		6	61	6	67	6	74	7	68	7	75	8	70	8	76	9	75	10	77	12	73	15	65			
18		6	69	6	75	6	82	7	77	8	74	8	78	9	76	10	76	12	73	12	81	15	73			
19		6	76	6	83	7	80	7	86	8	83	9	78	9	85	10	85	12	81	15	73	15	81			
20		7	74	7	80	7	89	8	84	8	91	9	87	10	85	12	79	12	90	15	81	15	90			
21		7	81	7	89	8	87	8	93	9	91	9	96	10	94	12	87	15	80	15	90					
22		7	89	8	86	8	95	9	91	9	99	10	95	12	87	12	95	15	88	15	98					
23		8	86	8	93	8	103	9	98	10	98	10	103	12	94	12	103	15	95							
24		8	94	8	102	9	101	9	108	10	107	12	96	12	103	15	92	15	105							
25		8	102	9	100	9	110	10	107	12	98	12	103	12	112	15	100	15	113							

Note: Based on safe loads indicated, the thickness (inches) and the areas of reinforcement (square inches per joist) are the figures for average conditions, and are for general information only. Each particular operation should be designed in accordance with actual conditions.

The Natco Engineering Department is at the disposal of any one desiring further information.

Weight of Combination Slabs Per Square Foot

Tile, in.	3	4	5	6	7	8	9	10	12	15
Weight, lb.	45	50	55	60	65	70	75	80	90	105

Note: Load tables for general information only, as each particular operation should be designed in accordance with actual conditions.

NATCO COMBINATION LONG SPAN FLOORS

NATCO GIRDER AND COLUMN COVERING

The purpose of beam, girder and column covering is to place a retardant to fire over the structural steel frame of buildings, and to provide a surface on which to plaster. This goes under the general name of "Fireproofing of Steel."

Natco Fireproofing Is Reliable

It is necessary that the steel columns and the girders and beams projecting below the floor slab, be protected by at least 2" of fireproofing material. Experience has proven that well-burned hollow tile (burned at temperature of about 2000° F.) has no equal as a covering for structural steel or iron. In case of a serious fire, the integrity of the whole structure depends upon the thorough protection of the columns and girders and floor beams, and no reasonable expense should be spared to accomplish this.

Natco Fireproofing Satisfies All Conditions

There is a shape of Natco Girder Covering to fit in with almost any condition of fireproofing which may be required. The lower flanges of rolled beams and girders of any size have a Natco Clip or Shoe Tile to fit them. Plate girders, double beams and riveted sections are protected by means of a hung soffit and angle tile (see Figs. 4 and 8). The sides of the beams are protected by proper thickness filler tile at heights designed to fit neatly the opening between top of clip or angle tile and floor slab or top flange of beam. (See illustrations.)

If heavy plaster cornices are used, the girders are protected first by the hollow tile, and the shape required for the plastering is obtained by iron brackets and metal lath. This latter, alone, is not sufficient protection.

Natco Fireproofing Saves Dead Load

Tile covering saves from 50 to 75% in weight over concrete or brick covering. Even on a small 12" I-beam the saving is 50% in weight; in the large girders it is much greater. (See Fig. 9.)

Natco Fireproofing Saves in Cost

Tile fireproofing can, in general, be put in place complete for close to the same price as it costs to erect box forms about the beams for the concrete. In addition, you have the cost of steel beam wrapper and of the concrete itself to add to form cost; therefore, a saving of approximately 25 to 50% in cost, over concrete covering, can be made by use of tile.

Natco Fireproofing Promotes Speed of Erection

No forms being needed to hold the tile in place, there is, of course, no period of waiting for concrete to set before shores and forms can be removed.

Natco Fireproofing Provides Best Plastering Surface

One of the greatest advantages of tile beam and girder and column covering is the excellent plastering surface which is given to receive this finish.

No other surface is more economical of plaster, nor has a better mechanical key or more capillary suction than has tile. The absorption of moisture is small and test shows that the tile and plaster become almost one body. Only two coats of plaster are needed on tile.

Where steel columns are to be stiffened with concrete or where concrete columns are to be finished with plaster, the forms for same may be built out of partition tile or column covering. The tile must be banded with steel wire or strap iron, and mortar must be allowed to set, however, before the concrete is poured so that there will be sufficient strength in the wall to take care of the side pressure of the wet concrete.

Natco Fireproofing Will Carry the Load Safely

Tile girder covering has always been used with flat arch construction of floors, but present day contractors are finding a great saving in its use with all forms of concrete and long span type of floors. Where the span is long and where there is a considerable load on the floor joists, it is customary to use tile filler with the cells vertical, so that concrete can run into them and give a continuous solid bearing of the concrete joints on the lower flange of the beam. (See Figs. 6 and 7.) Even horizontal fillers are amply strong enough to carry the total load of the ordinary floor safely and well within the allowance for tile walls under building codes.

Natco Fireproofing Lowers Insurance Rates

Due to the tendency of the time to lighten up in the construction of floors in order to effect saving in steel, there has come into recent use a great variety of floors of thin built-up sheet metal joists, of built-up joists of bars, and light weight structural beams with a thin slab of top concrete. These floors depend for fireproofing merely on a ceiling of plaster on metal lath.

It is self-evident that if the supporting steel beams are not protected by something other than these ceilings, fire breaking through a portion of the ceiling will get to the structural beams and the entire floor or structure will fail. Such supporting beams should be fireproofed entirely up to the underside of the concrete floor slab on top of the joists, in which case the floor slab might fail, but the structure will be intact. (See Fig. 10.)

Buildings constructed of heavy slow burning timbers and floors on a steel frame can be made much more secure and obtain a much better insurance rate if the beams and columns be encased in tile.

Natco Fireproofing a Barrier Against Corrosion

No better protection can be found for structural steel against corrosion than tile masonry with good cement mortar filling space between tile and steel. Exterior steel members should, therefore, be built in solidly with tile masonry.

Natco Fireproofing Service

The standard shapes entering into the construction of Natco Beam and Girder Covering are carried in stock at all times. Regardless of the size of the job, shipments can be started promptly and kept up as needed, provided, of course, that proper notice is given of the extent and nature of the requirements so that the factories can be scheduled to take care of them.

It is not necessary for the architect or contractor, when designing for or estimating on the use of Natco Hollow Tile Beam and Girder Covering, to worry about the sizes and shapes of the tile clips and filler which must be used on the various size beams.

It is part of the service provided by the NATIONAL FIREPROOFING CORPORATION to furnish with each order for this material, a set of schedules for the architect's approval and the contractor's use, designating just what will be furnished for each beam shown on the final steel erection plans. This material is all sold on a basis of the square footage of the actual outside surface of the tile surrounding the beam from bottom of floor on one side of beam to the bottom of floor on the other side.

Estimates can be made of the approximate amount of this tile by taking the linear distance in feet around $(A + B + C)$ as shown in Fig. 1 or $(A + B + C + D)$ as shown in Fig. 2, and multiplying this sum by the length of the beam in feet.

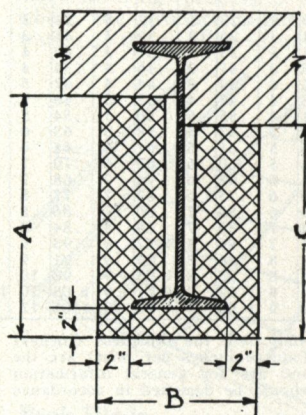


Fig. 1

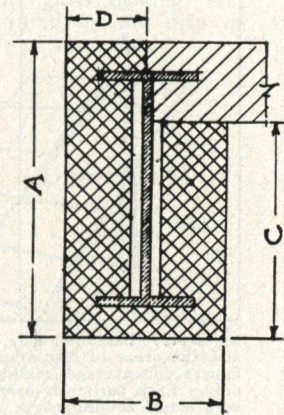
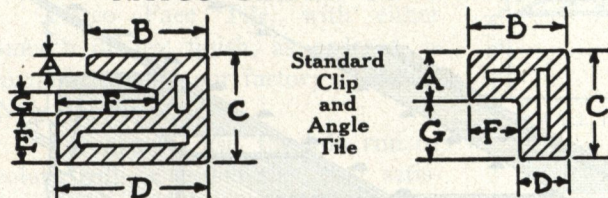


Fig. 2

After order is placed, a full set of the architectural drawings and a set of the final structural steel erection plans, as made up by the structural steel fabricator, should be forwarded to the NATIONAL FIREPROOFING CORPORATION as soon as possible, so that design can be made and submitted for approval at earliest date possible.

NATCO GIRDER COVERING



Note: Clips and angles are 12" long. A percentage of halves is shipped with each order.

Die No.	Approx. Sq. ft. outside measure	Approx. Weight per piece	A	B	C	D	E	F	G
G20	.65	13	$\frac{3}{4}$	$3\frac{3}{8}$	$3\frac{3}{4}$	$3\frac{3}{4}$	2	2	$\frac{3}{4}$
G25	.70	14	$\frac{3}{4}$	$3\frac{7}{8}$	4	$4\frac{1}{2}$	2	$2\frac{1}{2}$	$1\frac{1}{16}$
G30	.75	15	$\frac{7}{8}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{3}{4}$	2	3	$\frac{1}{8}$
G35	.80	16	$\frac{3}{4}$	$4\frac{3}{4}$	$4\frac{3}{4}$	$5\frac{1}{2}$	2	$3\frac{1}{2}$	1
G40	.85	17	$\frac{3}{4}$	$4\frac{3}{4}$	$4\frac{3}{4}$	6	2	4	1
G45	.90	18	$\frac{3}{4}$	$4\frac{3}{4}$	$4\frac{3}{4}$	$6\frac{1}{2}$	2	$4\frac{1}{2}$	1
G46	.95	19	$\frac{3}{4}$	$4\frac{3}{4}$	$4\frac{3}{4}$	$6\frac{3}{8}$	2	$4\frac{5}{8}$	$1\frac{1}{2}$
G50	.95	19	$\frac{3}{4}$	$4\frac{3}{4}$	$4\frac{3}{4}$	7	2	5	1
G55	1.00	20	$\frac{3}{4}$	$4\frac{3}{4}$	$4\frac{3}{4}$	$7\frac{1}{2}$	2	$5\frac{1}{2}$	$1\frac{1}{4}$
G60	1.05	21	1	$5\frac{1}{2}$	$4\frac{3}{8}$	8	2	6	$1\frac{3}{8}$
G61	1.05	21	1	$4\frac{1}{2}$	$4\frac{3}{8}$	8	2	6	$1\frac{3}{8}$
G70	1.16	23	1	6	$4\frac{3}{8}$	9	2	7	$1\frac{1}{2}$
G71	1.16	23	1	$4\frac{1}{2}$	$4\frac{3}{8}$	9	2	7	$1\frac{1}{2}$
G75	1.33	29	2	$7\frac{1}{2}$	$6\frac{3}{8}$	$9\frac{1}{2}$	2	$7\frac{1}{2}$	$2\frac{3}{8}$
G80	1.40	32	2	8	$6\frac{3}{8}$	10	2	8	$2\frac{7}{8}$
L23	.60	12	2	4	5	2	.....	2	3
L26	.90	18	2	4	$8\frac{1}{2}$	2	.....	2	$6\frac{1}{2}$
L43	.65	13	2	6	5	2	.....	4	3
L46	.95	19	2	6	$8\frac{1}{2}$	2	.....	4	$6\frac{1}{2}$

How to Select and Order Proper Clip Tile for Beams

(1) Obtain the width of the beam flange, either by field measurement, or from manufacturer's handbook.

(2) Select in the above table the clip tile, having the "F" dimensions nearest to $\frac{1}{2}$ the width of the flange.

(3) Order two pieces of clip tile for each linear foot of beams when the flange is covered on both sides.

Example—Beam having a flange width of $6\frac{1}{4}$ " will require a G-30, since $\frac{1}{2}$ of $6\frac{1}{4}$ " is $3\frac{1}{8}$ "; and G-30 has "F" dimensions equal to 3".

For some of the especially thick flanged beams, it is well to check the "G" dimension of the tile with the thickness of the nose of the flange of the beam.

Angle tile should be selected so that the "G" and "F" legs are long enough to cover the special condition for which it is needed.

Handling at the Job

In handling at the job, it is well to instruct your labor foreman that when a G-20 Clip is called for, the "F" or jaw dimension is two inches, a G-25 is $2\frac{1}{2}$ ", etc. on down the list. Similarly an L-23 is 2" at the "F" and 3" at the "G" dimension, etc. for all of the angles, except that the "G" dimension for the L-26 and L-46 angles is $6\frac{1}{2}$ ".

Caution: When material is received at the job, it is essential that all sizes of Clip, Angle and Filler Tile be piled in separate groups. If this be done, the handling of the shapes from pile to bricklayer will be greatly expedited.

Special Thickness of Fireproofing to Fulfill Ordinance Requirements

Where ordinances depart from the generally accepted standards nationally established, the NATIONAL FIREPROOFING CORPORATION in all cases provides Girder and Column covering of thickness and design that fulfill the ordinance requirements in that particular locality or district. In such cases special details, comparable to those illustrated under this heading, have been prepared and are accessible at the branch office serving the locality.

Our representatives are thoroughly familiar with all local building ordinance requirements pertaining to fire proofing within their respective territories—their advice and suggestions are always promptly available.

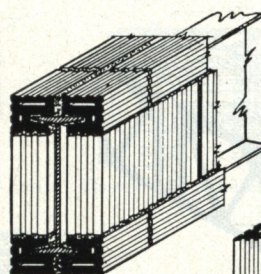


Fig. 3
Shows method of entirely enclosing a strut or beam which is in no way protected by the floor or other masonry

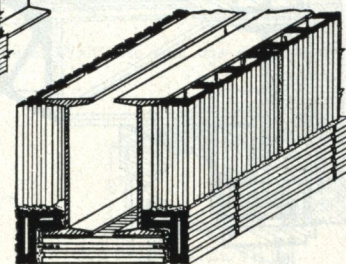


Fig. 4

Double beams, if not too far apart, may be protected on the bottom by long shoe or clip tile, however, if it be over 14" from the outside of flange on one beam to the outside of flange on the other beam, a 3" soffit tile is hung on metal hangers, which the contractor may make of No. 16 gauge or heavier strap iron. An angle tile is mortared over the end of this and after the mortar has set, the hanger serves as a reinforcement for the corner

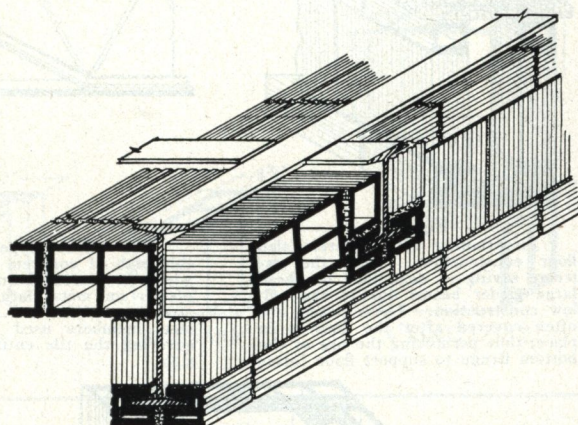


Fig. 5

Illustrates conditions of covering in flat arch work. Note especially covering where the arch is parallel to shoe on small beams and the full side covering at opening in floor

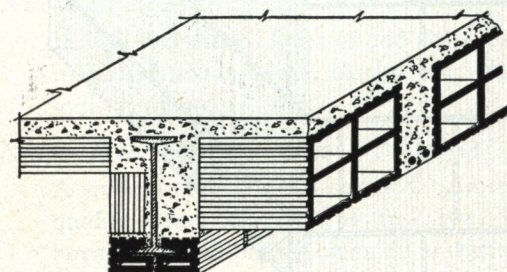
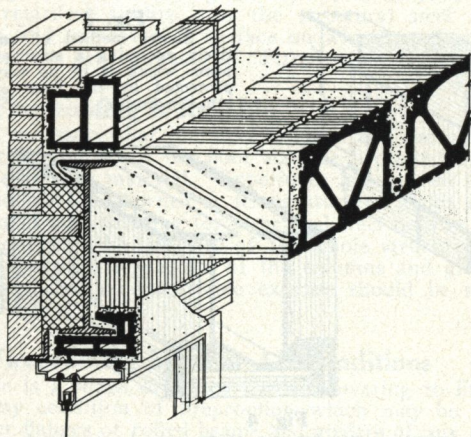


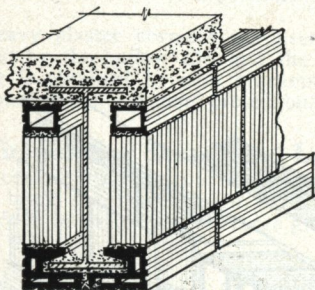
Fig. 6

Shows method of using tile fireproofing with long span concrete joist floor construction. It is economical either with structural tile or metal pan filler in the floor. You will note that the covering is put in place before the floor is poured and that the concrete of the joist fills the cells of the tile and bears directly on the flange of the beam

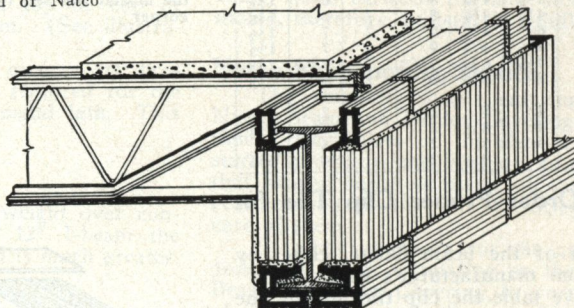
NATCO GIRDER AND COLUMN COVERING

**Fig. 7**

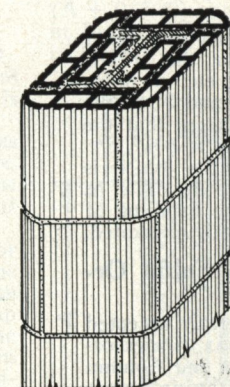
At spandrel beams over window heads and in similar places, a long clip tile can be furnished to give a good return for plastering and at the same time thoroughly fireproof the underside of the beam. Note illustration of the "Natcofloor" system and of Natco Unibacker wall construction

**Fig. 9**

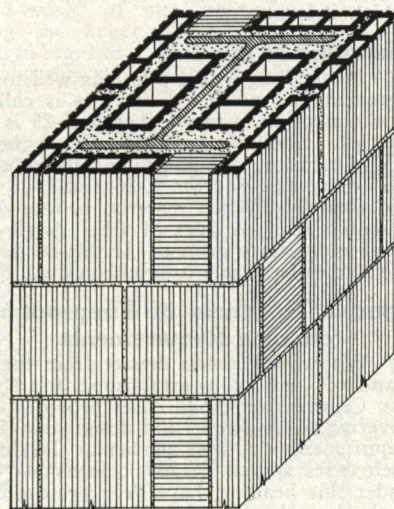
Fireproofing with concrete slab floor construction. Note the extreme saving in dead load on these large girder beams due to the hollow construction. These beams are often covered after the floor is in place, thus permitting the use of the bottom flange to support floor forms

**Fig. 10**

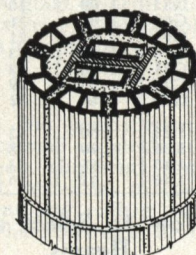
The various types of light weight floors constructed of a thin slab of concrete on top of some form of light metal joist, which is protected only on under side by an ordinary coat of plaster on metal lath, are only rated as a semi-fireproof construction. We here show method of protecting the structural steel members used in connection with such construction by covering the tile entirely up to the under side of the concrete slab

**Fig. 13**

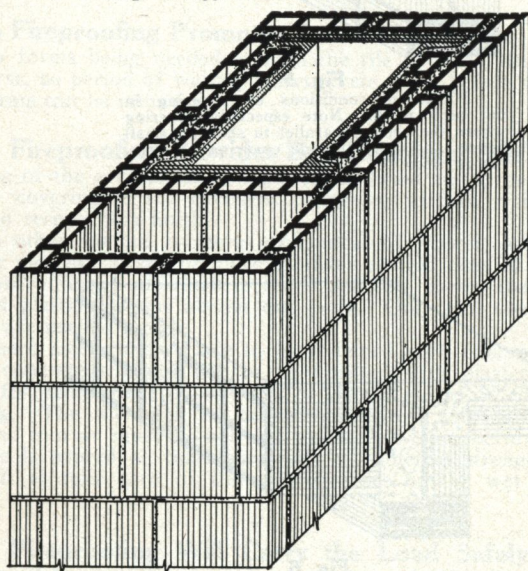
Shows use of 3" Natco Bullnose Tile in encasement of columns. No great quantity of this tile is carried in stock, but same can be manufactured on short notice, where requirements justify same

**Fig. 14**

Structural steel columns are most economically protected by encasing them with at least 3" of hollow tile

**Fig. 11**

Like the Bullnose Column Covering, not much of the 3" Circular Covering is carried in stock, but any normally sized order can be manufactured in a reasonable time. The radius of the tile is 10" on the outside and it is suitable for columns 16" to 28" in greatest dimension. This material is sold at a price based on the square foot of exterior surface.

**Fig. 12**

Shows method of providing pipe space and vent ducts by building same in conjunction with the protection of the steel columns

NATCO GIRDER AND COLUMN COVERING

NATCO FACE TILE

Natco Face Tile, with either smooth or tex finish, as ordered, is manufactured at our factory at Natco, New Jersey.

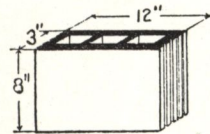
For general use, the kiln run of colors will be found the most satisfactory and pleasing combination. This tile can be furnished also in a one color range (not one shade) of very pleasing effect with one face tex finish and the other face smooth or scored.

Natco Face Tile is used principally in territory tributary to our New Jersey plants. It was developed and has been used successfully to meet a large demand for a hollow tile unit with a smooth or texture face for factories, railroad warehouses, farm buildings, etc. It is adapted especially to panel or curtain walls between reinforced concrete piers or columns. In the 8" size, jambs and lintels for standard steel sash can be furnished.

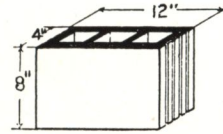
Red or black mortar joints add greatly to the appearance of the wall.

When ordered, a proper proportion of half blocks is shipped to break joints.

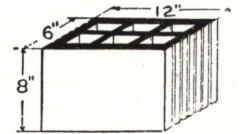
Special shapes to build complete walls are illustrated at the right.



3" WALL TILE

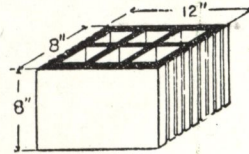


4" WALL TILE

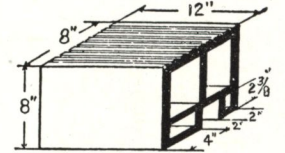


6" WALL TILE

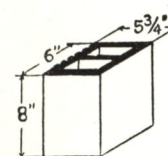
Note:—3", 4", 6" and 8" Closure Tile same as Wall Tile with one end smooth



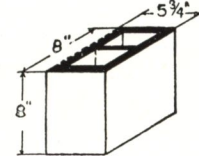
8" WALL TILE



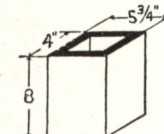
8" LINTEL TILE



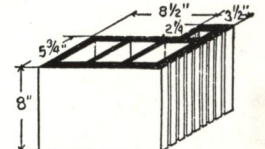
6" HALF CLOSURE



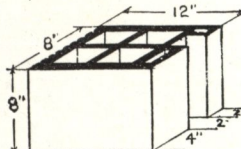
8" HALF CLOSURE



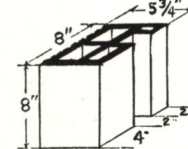
4" HALF CLOSURE



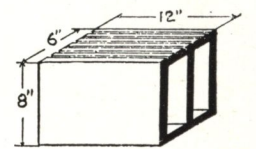
8" CORNER TILE



8" JAMB TILE



8" HALF JAMB



6" LINTEL TILE

NATCO FACE TILE

WITH SMOOTH OR "TEX" FINISH AS ORDERED
MANUFACTURED AT OUR NATCO, N. J. PLANT

NATCO FACE AND COMMON BRICK

(Produced at plant at Port Murray, N. J.)

General:

Natco brick are made from a shale clay, properly burned, resulting in a brick of excellent structural qualities. They rate highly in compression and rupture tests and have a moderately low absorption.

Grades and Types of Brick:

NATCO COLONIALS:

Selected smooth red brick with flashed and dark brick for relief.

NATCO TEX BRICK—FULL RANGE:

A rough textured face brick in blended range of reds, browns, blues, etc.

NATCO CLINKERS:

Rough overburned brick of odd shapes, etc., in reds, browns, blues, blacks, etc., mixed indiscriminately.

NATCO K/R SMOOTH REDS (COMMON):

A smooth red brick not selected. An extra quality common brick of full size, well burned. Selection can be made in this class of brick for face brick purposes, at extra cost.

Samples of all brick will be submitted upon request.

NATCO FACE AND COMMON BRICK

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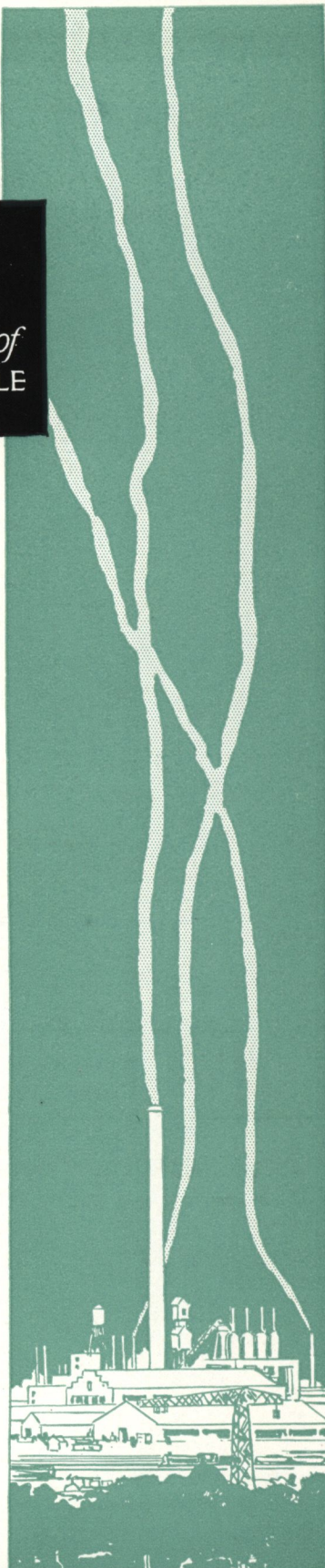
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